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CONTENTS

ALLEN, D. F., *Monnaies-à-la-Croix* 33

BANDYOPADHYAY, SAMARESH, Nāṇaka 305

BRUUN, PATRICK M., Constantine's *Dies Imperii* and *Quinquennalia* in the Light of the Early Solidi of Trier (*Plates IX–X*) 177

CARSON, R. A. G., Alcester (Warwickshire) Find of Roman Antoniniani and Sestertii 123

—— Mattishall (Norfolk) Treasure Trove of Roman Imperial Silver Coins 129

—— Welwyn Treasure Trove of Roman Imperial Denarii 143

CHATTOPADHYAYA, B. D., Dates of the Traikūṭaka Kings of Western Deccan 291

COPE, L. H., The Nadir of the Imperial Antoninianus in the Reign of Claudius II Gothicus, A.D. 268–70 145

CRAWFORD, M. H., The Financial Organization of Republican Spain (*Plate VI*) 79

—— Bletchley Treasure Trove of Roman Imperial Denarii 113

DOLLEY, MICHAEL, and GALLAGHER, COLM, Four Notes on Unpublished Irish Finds of the Sixteenth and Seventeenth Centuries 219

—— and TODD, MALCOLM, The Roman Coin-Hoard from Timberland (Lincs.): a Revision 107

JOHNSON, W. MCALLISTER, A Numismatic Approach to the Iconography of several Gonzagan Fresco Cycles 309

KRAAY, COLIN M., Notes on the Mint of Side in the Fifth Century B.C. (*Plate XVI*) 15

MATE, MAVIS, Coin Dies under Edward I and II 207

MATTINGLY, HAROLD B., Notes on some Roman Republican Moneyers 95

METCALF, D. M., Billon Coinage of the Crusading Principality of Antioch (*Plates XIII–XV*) 247

MITCHINER, MICHAEL, A small Hoard containing Coins of Arda-Mitra 301

MØRKHOLM, OTTO, The Classification of Cappadocian Coins (*Plate V*) 21

PRICE, M. JESSOP, Greek Coin-Hoards in the British Museum (*Plates I–IV*) 1

STEWART, IAN, Style in Medieval Coinage 269

WEILLER, R., A Hoard of Radiate Imitations from the Tetelbierg (G.-D. of Luxembourg) (*Plates VII–VIII*) 163

WELLER, H. L., Eighteen Byzantine Scyphate Coins of the late Twelve Hundreds (*Plates XI–XII*) 235

NOTES

CLAYTON, P. A., Bibliography of Articles from Non-numismatic Journals 319

MACDONALD, D. J., A False Denarius of Claudius I 313

REECE, RICHARD, Analyses of some Early Imperial Alexandrian Tetradrachms 317

REVIEWS

MARGARET THOMPSON, *The Agrinion Hoard* (*NNM* 159) (Harold B. Mattingly) 325

Sylloge Nummorum Graecorum. Vol. IV: *Fitzwilliam Museum, Leake and General Collections*. Pt. VII (Anne E. Jackson) 333

Essays in Greek Coinage Presented to Stanley Robinson, ed. C. M. Kraay and G. K. Jenkins (Shelagh Jameson) 334

LUDOVICO BRUNETTI, *Opus Monetale Cigoi* (R. A. G. Carson) 338

MARCEL THIRION, *Les Trésors monétaires gaulois et romains trouvés* en Belgique (R. A. G. Carson) 340

PIERRE BASTIEN, *Le Monnayage de Bronze de Postume* (D. D. Yonge) 341

KARL F. MORRISON, *Carolingian Coinage* (*NNM* 158) (Philip Grierson) 346

J. E. CHARLTON, *1969 Standard Catalogue of Canadian Coins, Tokens and Paper Money* (D. L. F. Sealy) 350

BURTON HOBSON, *Getting Started in Coin Collecting* (D. L. F. Sealy) 352

EDUARD VON ZAMBAUR, Die Munzpragungen des Islams, Band 1 (Helen W. Mitchell) 353

MEHTA VASISHTHA DEV MOHAN, *The Indo-Greek Coins* (A. D. H. Bivar) 354

ROBERTO WEISS, *Pisanello's Medallion of the Emperor John VIII* Palaeologus (J. G. Pollard) 356

INDEX 359

THE PRESIDENT'S ADDRESS
REVIEW OF THE YEAR i

PROCEEDINGS OF THE SOCIETY 1968–9 ix

THE ROYAL NUMISMATIC SOCIETY xxvii

DR. F. PARKES WEBER PRIZE xxix

THE LHOTKA MEMORIAL PRIZE xxx

LIST OF FELLOWS, JUNE 1969 xxxi

GUIDANCE FOR CONTRIBUTORS lxiii

GREEK COIN HOARDS IN THE BRITISH MUSEUM

By M. JESSOP PRICE

[SEE PLATES I–IV]

THE following lists are intended to make readily available the contents of a number of hoards which have hitherto remained inadequately published. Discussion of the problems they raise will be kept to a minimum.

I. THE DALI HOARDS OF 1869

Two coin hoards were found by Sir R. H. Lang during the excavation of a temple complex at Idalium in Cyprus.[1] The first, a coagulated mass, was probably originally secreted in a bag; and the second was found in two earthenware pots. The two hoards were found in different rooms, but both on the east side of the complex, and both under the floor pavings.

THE FIRST HOARD:

Inv. nos. 1870–11–2
1871–7–1 (part)
1902–1–3 (part)

Bibliography: Noe 297
NC 1871, 1 f.
RN 1883, 257
NC 1914, 105–6

The following pieces, which have already been published, are the only coins which can be securely attributed to this find.

Amathus	*BMC* 3–6
Citium	*BMC* 1–6, 12–27, 29–34, 36–41, 43–5, 48, 71
Idalium	*BMC* 1–28
Lapethus	*BMC* 1–6
Paphus	*BMC* 2, 4–13, 39
Salamis	*BMC* 2–3, 12–13, 15–27, 33–6
Uncertain	*BMC* A 1
	B 2
	C 3–4
	D 1–2
Athens	*BMC* 46, 51

[1] *Transactions of the Royal Society of Literature*, 1878, 30 f.

Further coins of Cyprus of similar types were obtained from Lang in 1912 and 1913, but there is no record that they belonged to this find.

THE SECOND HOARD:

Inv. nos. 1871–7–1 (part)
1902–1–3 (part)
1913–2–12 (part)

Amathus

Obv. Lion lying r.; above, star.
Rev. Lion forepart r. in incuse square.

1	Sixth	1·68 gm.	(= *BMC* 3)

Obv. Similar; above, ♀.

2–5	Twelfths	0·80 gm. - - - 0·70 -	(incl. *BMC* 4) 1 obv. die 1 rev. die

Obv. No symbol.

6–7	Twenty-fourths	0·50 gm. - -	(= *BMC* 5–6) 1 obv. die 1 rev. die
8	Forty-eighth	0·20 gm.	
9–16	Ninety-sixths	0·10 gm. - - - - - - - -	1 obv. die 2 rev. dies

Citium

Obv. Herakles with bow and club r.
Rev. Lion tearing stag r. in incuse square; Aramaic inscription.

'Baalmelek II'

17	Stater	10·98 gm.	(= *BMC* 35)

'Azbaal'

18–20	Thirds	3·50 gm. - - 3·40 -	2 obv. dies 3 rev. dies

Further examples of these thirds of Azbaal (*NC* 1871. 17, 3), and others of Baalmelek II (*NC* 1871, 17. 2) were present in this hoard, but they cannot be distinguished from those in the first Dali hoard (*NC* 1871, 17. 44 and 46).

No inscription

21–8	Sixths	1·90 gm.	- -	(incl. *BMC* 50–1)
		1·80	- - -	
		1·70	- -	
		1·60		
		1·50	-	
				1 obv. die
				2 rev. dies
29–127	Twelfths	1·00 gm.	20 coins	(incl. *BMC* 52–5)
		0·90	48	
		0·80	29	
		0·70	2	at least 8 obv. dies
				2 rev. dies
128	Twelfth (*obv.* Lion head l.)	0·98 gm.		(= *BMC* 84)

Obv. Head of Herakles r.

129–227	Twenty-fourths	0·60 gm.	2 coins	(incl. *BMC* 57–62)
		0·50	16	
		0·40	37	
		0·30	40	
		0·20	3	
				at least 5 obv. dies
				and 4 rev. dies

One of the rev. dies, accounting for 47 coins, is on flans of consistently lighter weight (0·20–0·40 gm.).

228–76	Forty-eighths	0·25 gm.	18 coins	(incl. *BMC* 63–7)
		0·20	21	
		0·15	9	
				3 obv. dies
				2 rev. dies
277–80	Ninety-sixths	[0·10 gm.	- - - -	

Paphus

Obv. Bull standing l.; above, winged sun symbol.
Rev. Dove standing l.; above, ivy leaf; below l., one handled cup.

281–307	Sixths	1·80 gm.	1 coin	(incl. *BMC* 18–23)
		1·70	15	
		1·60	7	
		1·50	3	
				3 obv. dies
				4 rev. dies

308–43	Twelfths	1·20 gm.	1 coin	(incl. *BMC* 24–9)
		1·10	0	
		0·80	33	
		0·70	3	
				2 obv. dies
				1 rev. die
344–87	Twenty-fourths	0·40 gm.	31 coins	(incl. *BMC* 30–8)
		0·30	13	
				3 obv. dies
				1 rev. die
388–9	Forty-eighths	0·20 gm.	-	
		0·10	-	
				1 obv. die
				1 rev. die
Salamis				
Obv.	Ram's head l.			
Rev.	Blank.			
390–6	Forty-eighths	0·25 gm.	- - -	(incl. *BMC* 10–11)
		0·20	- - - -	
				2 obv. dies

Lang believed that the two hoards were buried at different times, being intent on giving as early a date as possible for the first hoard. However, since the latest coins of both hoards are staters, thirds, and sixths of Baalmelek II, it seems likely that they were in fact buried at the same time. The exact date of the deposits can only be ascertained after an extensive study of the local history and coinage. It can merely be stated here that the date of burial must be long after the Larnaca hoard[1] of 480, and before the Vouni treasure[2] of c. 380. The last quarter of the fifth century is the most probable time for the burial of the two Dali hoards.

II. THE LARNACA HOARD OF 1870

Inv. nos. 1871–11–7
1902–1–3–95
1913–10–13–1 and 2

Bibliography: Noe 600
NC 1871, 229 f.
NC 1903, 320
E. T. Newell, *Tyrus Rediviva* 10–11

This pot hoard of over a thousand gold pieces has unfortunately been dispersed; but the British Museum was fortunate to obtain a

[1] *NC* 1935, 165 f. [2] *Opuscula Archaeologica*, 1946, 25 f.; *NNÅ* 1949, 67 f.

representative selection. Berlin Museum obtained 13 pieces from the Fox collection; 25 more were sold at Sothebys, of which 1 is now in the British Museum; and 4 were sold in 1923 in Naville Sale V. A further 8 varieties are recorded in Newell's notes,[1] now housed in the American Numismatic Society. It is possible, therefore, to put together quite a large and representative portion of the hoard. In the list of varieties the sources are given with the following abbreviations: Newell's notes (N); British Museum (BM); Sotheby Sale 17.vi.1913, no. (S); Naville Sale V, no. (Nav.); Berlin Museum (B), illustrated on **Pl. I**. A rough indication of wear (w) is given on a scale of 1 (FDC) to 4 (fairly worn).

Philip II

	Mint	*Muller no.*	*Variety*		
1	Amphipolis	77	Club	BM	w 4
2		—	Trident Σ	BM	w 2–3
3		68	Trident Σ	BM	w 1
4–6		59	Trident	S 77–9	
7–8		108	Kantharos	S 75; B [Pl. I]	w 1
9–11		1	Thunderbolt	BM; S 76; B [Pl. I]	w 1
12–13		52	Bucranium	N; BM	w 1
14	Abydus	—	MH horse's leg	BM	w 2
15		138	Horse's leg; lyre	BM	w 1–2
16		100	Star	Nav, 1361	
17		—	thunderbolt, corn-ear	BM	w 1
18	Lampsacus	202	Snake	BM	w 1–2
19		307		BM	w 1–2
20	Colophon	174	Caduceus, spearhead	BM	w 2
21–2	Teos	—		N; BM	w 2
23		305	Σ	BM	w 1–2
24	Magnesia	176	Bee, spearhead	BM	w 2
25	Uncertain	cf. 263	Cicada	BM	w 2
26		163	grapes	BM	w 1–2
27		cf. 285		N	
28		158	Grapes	N	
29–30		304		BM; S 80	w 1–2
31		180	Cornucopiae	BM	w 1

[1] I am very grateful to Miss Margaret Thompson for giving me the free use of Newell's notes, and to Dr. Schultz for casts and details of the coins in Berlin. All the coins of Alexander and Philip III in the British Museum will be fully published with photographs in the forthcoming *BMC*.

Alexander III

	Mint	*Muller no.*	*Variety*		
32–3	Amphipolis	105	Trident	S 90–1	
34–5	Thebes?	751	Boeotian shield	S 82–3	
36	Abydus	608	pegasus forepart	BM	w 2
37		573	Corn-ear	BM	w 1–2
38		381	pentagram, cornucopiae	BM	w 1–2
39		372	cornucopiae	BM	w 1–2
40		380	shell	BM	w 1
41		373	cornucopiae	BM	w 1
42	Lampsacus	625	Snake	BM	w 3
43		606	Pegasus forepart	BM	w 1–2
44	Colophon	—		BM	w 2–3
45	Teos	cf. 290	Griffin;	BM	w 1–2
46	Magnesia	cf. 304	Facing ram's head,	BM	w 2–3
47		cf. 301	Ram's head r.	N	
48	Miletus	—	(*obv.* thunderbolt)	BM	w 4
49		759		BM	w 3–4
50		584	Corn-ear, double axe	N; = Nav. 1394	
51		577	, double axe	B [Pl. I]	w 4
52	Sardes	cf. 521	TI Bee	BM	w 3
53–4		23	Torch	N; B [Pl. I]	w 2
55		—	Torch	BM	w 2–3
56		88	Torch	BM	w 2
57		247	Ivy leaf	B [Pl. I]	w 1–2
58		500	Stag's head	B [Pl. I]	w 1
59		157	Star	BM	w 1
60	Pamphylia	1474	ΦΙΛΣ	BM	w 2
61		1477	ΦΙΛ	BM	w 1–2
62	Lycia?	—	Thunderbolt, triskeles	BM	w 4
63	Tarsus	105	Trident head	BM	w 1–2
64	Citium	1296		BM	w 2
65	Salamis	632	Rudder	BM	w 3
66		—	Rudder ΓΕ	BM	w 1–2
67		cf. 633	Rudder ΓΕ	BM	w 1
68		1324	ΓΣ	BM	w 1
69		1325	ΓΣ	BM	w 1
70	Amathus	502	Prow	BM	w 1–2
71–2	Aradus	1367	; (*obv.* Δ)	BM; B [Pl. I]	w 1–2

	Mint	*Muller no.*	*Variety*		
73		—	Anchor 𐤀 Π	BM	w 1–2
74–6	Byblos	1373	𐤀	BM; S 88; B [Pl. I]	w 2
77	Sidon	134	Club	S 81	
78		—	N	BM	w 2
79		1321	Σ	BM	w 1–2
80		—	T	Nav. 1043	
81		—	𐤉	BM	w 2
82		1635	A 𐤌	BM	w 1
83		—	ΣI Palm	BM = S 89	w 1
84		151	Star	BM	w 1
85	Tyre	1588	𐤀; 𐤀	BM	w 1
86–7		1593	𐤀; 𐤀	BM; B [Pl. I]	w 1
88		—	𐤀; 𐤀	BM	w 1
89		1586	𐤀; 𐤀	BM	w 1
90		1601	𐤀; 𐤀	Nav. 1400	
91–101			Similar varieties	S 84, 85–6, 92–9	
102	Ake		Year?	B [Pl. I]	w 3
103			Year 29	B [Pl. I]	w 2
104			Year 35	BM	w 1–2
105	Babylon		?	S 87	
106		709	𐤀𐤏 in wreath	BM	w 2
107		722	𐤇𐤐, 𐤀𐤏 in wreath	BM	w 2
108		721	⊙E, 𐤀𐤏 in wreath	BM	w 2
109		723	𐤀𐤏 in wreath 𐤇𐤐	BM	w 2
110		726	X 𐤀𐤏 in wreath	BM	w 2
111		733	𐤀𐤏 in wreath MI	BM	w 1–2
112		731	MI 𐤀𐤏 in wreath	BM	w 1–2
113		1304	𐤇𐤐 𐤌	BM	w 1
114	Susa	cf. 1562	𐤅 𐤁	BM	w 1–2
115		—	ΛA 𐤌	BM	w 1–2
116	Alexandria	120	Rose Δ	BM	w 2–3
117		1640	Δ 𐤐	BM	w 2–3
118–19		1575	EY	BM; B [Pl. I]	w 1
120	Uncertain	—	No symbol	N	
121		293	Griffin head (Sardes ?)	BM	w 4
122		cf. 845	𐤓 𐤔𐤍 (Teos?)	BM	w 2–3

	Mint	*Muller no.*	*Variety*		
123		305	Grapes	BM	w 2
124		190	Helmet	BM	w 2
125		—	ΜΕ Τ	BM	w 2
126		127	ΕΥ Rose	BM	w 1–2
127		—	Rose ΕΥ	BM	w 1–2
128		1541	Helios	BM	w 1–2
129		—		BM	w 1–2
130–1		—	(Babylon?)	BM; B [Pl. I]	w 1–2
132		328	Lion head	BM	w 1–2
133		cf. 163	Star	BM	w 1
134		—	Η	BM	w 1
Philip III					
135	Abydus	59	Cornucopiae	BM	w 3
136		63	Pentagram, cornucopiae	BM	w 1–2
137	Aradus	cf. 100	Prow ΥΛ	BM	w 2
138		110		BM	w 2
139	Babylon	97	Μ ΛΥ	BM	w 2–3
140		23	Wheel	BM	w 2
141		116	Helios ΚΥ	BM	w 2
142		cf. 98	ΛΥ (*obv.* Μ)	BM	w 1–2
143	Susa	87	ΛΑ	BM	w 1
144	Uncertain	—	Cornucopiae	BM	w 3

Nos. 53–5, 60–1, 70, 105, 107–15, 130–1, and 139–43 carry the title *Βασιλεως* on the reverse.

The burial of the hoard can be placed at the end of the fourth century, c. 300, by the dated coins of Sidon and Ake and by the freshly minted coins of the mint at Tyre. Since the above list probably records most of the varieties present, it is a useful guide to the relative chronology of the posthumous issues of Philip II and Alexander. Some of the former were amongst the best-preserved coins of the hoard.

III. THE SALONIKA FIND OF c. 1918 [*see* PLATE II]

Inv. nos. 1921–7–15 Bibliography: Noe 898 = Noe 631

This small find of bronze coins was made during military operations in the First World War.

Philip II

Obv. Apollo laur. r.
Rev. Horseman r.; Φιλιππου

1–2	Bucranium (2)	6·14 gm., 5·24 gm.	w 3
3	Caduceus (*obv.*, head l.)	6·37	w 4
4	Corn grain	5·85	w 3
5	Kausia	5·75	w 2–3

Alexander III

Obv. Herakles r.
Rev. Bow case l., and club r.; BA

6	Thunderbolt	4·45	w 2–3

Rev. Bow and quiver l., club r.; BA

7–8	Jerboa	6·43, 6·17	w 2–3
9	Branch	5·81	w 2
10	Snake	5·70	w 2
11	Trident	5·87	w 2
12	Thunderbolt	5·96	w 1–2

Rev. Bow and quiver l., club l.; BA

13	Thunderbolt	5·82	w 1–2

The Drama hoard,[1] the only comparable hoard of these types, was clearly an earlier deposit, containing none of these late issues of Alexander. The Salonika find is probably to be dated to the reign of Cassander, before the issue of coins in his own name, c. 310 B.C.

IV. THE MAEANDER VALLEY HOARD OF 1895

[*see* PLATE III]

Inv. no. 1895–5–7

Bibliography: Noe 637
BMC Caria pp. lxiii, cviii
Akarca, *Mylasa* 13, 55

Philip II

		Mint	*Muller no.*	*Variety*		
1	330–300 B.C.	Amphipolis	—	Astragalos	BM	w 3
2	„	Clazomenae	309	Boar protome. spearhead	BM	w 2
3	„	Abydus	247	Corn-ear	BM	w 2–3
4	„		137	Horse's leg	Naville V. 1355	w 2
5	„	Teos	cf. 305		Naville V. 1363	w 2
6	300–250 B.C.	Magnesia	—	Maeander	BM	w 2
7	„	Mylasa	—	Double-axe-trident,	BM	w 2

[1] *MN* xi (1964), 37 f.

		Mint	*Muller no.*	*Variety*		
8	*c.* 300 B.C.	Uncertain	106	Corinthian helmet	BM	w 3
9–10	300–250 B.C.	Uncertain of SW. Asia Minor	—	Trident Ⓓ	BM; Naville V. 1352	w 1–2
11	„		—	AN	BM	w 2
12	„		—	ΦI M	BM	w 2
13	„		—	M K	BM	w 2

The interest of this small hoard centres on the unique issues of Magnesia and of Mylasa, and on the last four uncertain varieties, all of which are clearly local, posthumous issues of not earlier than c. 300. The obverse of that of Mylasa is clearly intended to be a portrait. Comparison of wear of the first five coins with similar issues in the Larnaca hoard would suggest that the Maeander Valley hoard is not to be dated very much later,[1] and almost certainly not after c. 250.

V. THE URFA HOARD OF 1924

Inv. nos. 1924–7–20
1924–9–3
1924–10–3
1924–10–18
1925–1–7
1925–3–3
1925–5–8

Bibliography: Noe 1147
NC 1924, 20
Newell, *ESM* 76
MN xiii (1967) 55–6

Mr. G. K. Jenkins's list in *MN* 1967 can now be supplemented by further coins in the British Museum,[2] and in E. T. Newell's notes. The complete list is as follows:

Alexander III

Tetradrachms

1	Herakleia	A ⋛ Club (countermark, anchor)	BM	w 2–3
2	Mytilene	Ƭ Lyre	BM	w 2–3

[1] Hitherto dated to the second century B.C. Similar staters of the Rhodes mint with the names of the magistrates Mnasimachos and Aristoboulos were probably struck at the same time. The same names appear on Rhodian autonomous silver of the third century.

[2] All the coins in the B.M. were acquired from Edzadjian of Aleppo, and all Newell's information seems also to stem from him. The patina is distinctive; and all the coins in the above-mentioned lots seem to belong to a single find with the following three exceptions:

1924–7–20–1	Autonomous of Laodiceia
1924–10–3–4	Antiochus IX
1925–3–3–9	Alexander III—Miletus mint.

3		Lyre I	BM	w 2	
4	Temnos		BM	w 1–2	
5			BM	w 1–2	
6	Chios	Sphinx on amphora	BM	w 1–2	
7	Aspendus	AΣ KΔ (countermark Helios overlying countermark anchor)	BM	w 3	
8		AΣ KE wreath (countermark, Helios)	BM	w 3	
9	Perge	B (countermark, anchor)	BM	w 3	
10		Γ (countermark, anchor)	BM	w 3	
11		IC (countermark, anchor)	BM	w 2–3	
12		IΞ (countermark, anchor)	BM	w 3	
13		KA (countermark, anchor)	BM	w 2	
14		K⊙ (countermark, anchor)	BM	w 2	
15		ΛB (countermark, anchor)	BM	w 2–3	**[Pl. IV]**
Drachms					
16	Abydus	I	N		
17		pegasus protome	N		
18		Lion r.; ivy leaf	N		
19	Lampsacus	Artemis	N		
20		Artemis;	N		
21			N		
22		Snake	N		
23		Snake;	N		
24–5		KI;	N		
26		Mouse;	N		
27–8	Colophon	Star; spearhead	N		
29		Crescent; N	N		
30		Crescent, lion head; Π	N		
31		crescent	N		
32		Crescent	N		
33		Lion protome, crescent; pentagram	N		
34	Teos	;	N		
35		Griffin l.	N		
36	Miletus	; double-axe	N		
37	Magnesia	;	N		
38	Sardes	Torch;	N		
39		Torch; A	N		
40	Chios		N		

41	Uncertain	Aplustre	N	
42			N	
43		;	N	
44		in wreath; club	N	
Lysimachus				
Tetradrachms				
45	Pella		N	
46	Amphipolis	Caduceus- ;	N	
47	Sestus	Bee	N	
48	Calchedon	K corn-ear	N	
49		E corn-ear KAAXA	BM	w 2–3
50	Cius	Club bowcase	N	
51	Alexandria Troas	Ram's head star	N	
52		bee; thunderbolt	N	
53	Tenedos	double-axe	BM	w 1–2
54	Lampsacus	Aplustre	N	
55		Pegasus protome	N	
56–7		Herm	N	
58		crescent	N	
59		star	N	
60	Magnesia	Maeander	N	
61		Maeander	N	
62		Torch	N	
63–4	Smyrna	head of Tyche	N	
65	Sardes	;	N	
66–8	Uncertain	No symbol	N	
69–70		;	N	
71			N	
72			N	
73			N	
Drachma (Alexander type)				
74	Colophon	Lion protome; crescent; pentagram	N	
Antigonus Gonatas				
Tetradrachms				
75–9	*Obv.* shield; *rev.* Athene Promachos		N	
80	*Obv.* Poseidon; *rev.* prow		N	
Athens				
81	New Style tetradrachm = Thompson p. 41. 26a		BM	w 2 **[Pl. IV]**

Bithynia

82 Prusias I tetradrachm ΜΕ, thunderbolt, BM w 3 **[Pl. IV]**

83–90 „ „ uncertain N

Cyme

91 Tetradrachm *Obv.* Amazon; *rev.* horse, ΔΗΜΗΤΡΙΟΣ; ΚΥΜΑΙΩΝ; in wreath BM w 1–2 **[Pl. IV]**

Pergamum

92 Eumenes II tetradrachm = Westermark V. CXL R. 1 BM w 2–3 **[Pl. IV]**

93 „ similar N

The remaining coins, of the Seleucids, are identified by their number in E. T. Newell's *ESM* and *WSM*:

94–100	Antiochus I	Seleuceia	BM	159
			N	149, 155, 159, 162 (3)
101–4	Antiochus I–II	Seleuceia	BM	181, 190
			N	188, 189
105	Antiochus II	Antioch	BM	976
106–7		Apamea	BM	1135
			N	1143
108		Tarsus	BM	1307
109		Sardes	BM	1406
110	Seleucus II	Apamea	N	(Very worn)
111	Seleucus III	Uncertain	BM	
112–19	Antiochus III	Seleuceia	BM	221, 233, 234, 240 (2), 260 **[Pl. IV]**
			N	243 (2)
120–32		Susa	BM	386, 392 (var.), 392 (2), 393, 394, 396 (3), 398, 401, 403
			N	396
133–42		Nisibis	BM	831, 832, 833, 845, 846, 847, 848, 850, 854, 862
143–52		Antioch	BM	1044, 1048, 1049, 1051 (3), 1053
			N	1045, 1051
153–6		Laodiceia	BM	1228, 1232, 1235, 1236
157–8		Apamea	BM	1186
			N	1186
159–61		Tarsus ('Tyre')	BM	1261 (2)
			N	1266
162–7		Uncertain	BM	1682 (2), 1683 (2), 1696 (var), —.

Reinspection of this hoard has shown that many of the tetradrachms of Alexander bear the countermarks *anchor* and *head of Helios*. The application of these may certainly[1] be placed after 190, and hitherto their first appearance has been in the second quarter of the second century.[2] In addition, the coins of Athens, Chios, and Cyme are to be placed after 190. Although there has never been a suggestion that coins of Seleucus IV or Antiochus IV were present in the hoard, there is always the possibility that the finder separated these later coins off as pieces of very fine condition.[3] Even assuming that this was so, the state of wear of the coins of Antiochus III and of the dated Alexanders would hardly allow a date for the deposit[4] much after c. 160; and it is by no means unlikely that the hoard was secreted as early as c. 185. The importance of this is that this hoard strongly supports Miss Thompson's date for the beginning of the Athenian New Style coinage early in the second century.[5] Opponents of her views of general chronology may question the length of time allotted to the early period of the New Style series; but they should be cautious in assuming a lower date for its introduction.

[1] *Syria* 1958, 195–6.

[2] e.g. the Ain Tab and Latakia hoards (Noe 24 and 603) of c. 165 B.C. The countermark is never found in the many hoards datable to 190 B.C. This alone must make the deposit of our Urfa hoard later than that of the Mesopotamian hoard of *MN* 1967, 1 f.

[3] Since all our information comes from Edzadjian, this possibility cannot be disregarded.

[4] The latest Seleucid coin present is ESM 260 of 203–187 B.C. (pl. 4. 6). As a whole the Seleucid coins display consistent states of wear which Jenkins, loc. cit., believed to be in accord with a date for the deposit of 190 B.C.

[5] For attempts to change Miss Thompson's chronology see *NC* 1962, 275 f.; *NC* 1964, 27 f.; *BCH* 1965, 504 f.

NOTES ON THE MINT OF SIDE IN THE FIFTH CENTURY B.C.

By COLIN M. KRAAY

[SEE PLATE XVI]

SOUTHERN Asia Minor from Lycia to Cilicia provides a wealth of material for studying the interaction of Greek and native influences, yet Side is the first of its major mints to become the subject of a detailed monograph since the pioneering work of Lederer on Nagidus in 1932. This neglect is probably due to the fact that only in the last twenty years has the economic development of the area increased the available numismatic material for many mints to a point where detailed studies become profitable. Miss S. Atlan's *Untersuchungen über die Sidetischen Münzen des V und IV Jahrhunderts v. Chr.* is planned as only the first of a number of studies on different phases of the mint's activity. This numismatic exploration is intended to progress parallel with the archaeological exploration of the city itself, which has already made Side one of the most impressive and attractive ancient sites of southern Turkey.

The main text, which is given in both Turkish and German, is subdivided into sections on types, legends, countermarks, hoards, and other aspects. The descriptive catalogue of the coins, however, is in Turkish only, which is perhaps an unfortunate decision. Since the plates are not of a quality to show the finer points of dies, most readers will be able to discover the author's interpretation only by the laborious use of a dictionary for every word.

The staters of Side fall into two quite distinct groups: those with pomegranate as obverse type in the fifth century, and those with standing Athena in the fourth century. About the former group I have collected some material over a number of years, and can add something to what Miss Atlan has written; I also take this opportunity of publishing on **Plate XVI** a number of coins some of which were not known to Miss Atlan.

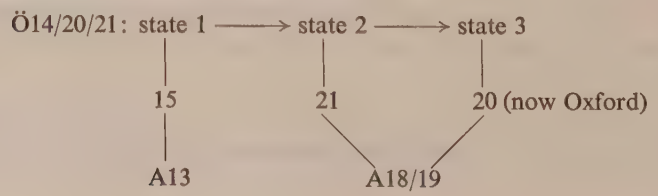
No. 6, 1. This stater in Paris is overstruck upon a stater of Phaselis with obverse prow to left and reverse incuse square [**Pl. XVI. 1**]. This overstrike affords little guidance on chronology, since such staters of

Phaselis appear to have been already in circulation in the late sixth century, as shown by examples in the Demanhur and Benha hoards; the Sidetan issue must certainly be later than this. Similar overstrikes on Phaselis occur among the hoplite/triskeles issues of Aspendus [e.g. **Pl. XVI. 2**].

No. 9 (Ö8–A7). The American Numismatic Society possesses a stater, probably from these dies [**Pl. XVI. 3**], overstruck by the unattributed issue (possibly Cypriot) shown in *NC* 1948, pl. V, 5 [**Pl. XVI. 4**]. Once again no firm chronological conclusions can be based on this overstrike, yet it has some relevance to the series of Side because the branch which forms the reverse type of the unattributed issue is clearly related to that on the reverse of the coin in Berlin, which has sometimes been attributed to Side [**Pl. XVI. 5**]. Nevertheless, Miss Atlan is no doubt right in excluding the Berlin coin from the Sidetan series on the grounds that its somewhat ill-preserved circular obverse type appears to be a shield rather than a pomegranate.

Nos. 14 and 16. While the obverse dies of these two coins, both known so far in single specimens only, are clearly different, their reverse dies (numbered A12 and A14) are in fact the same; A14 is a later state of A12 in which the lower edge of the reverse die has broken away, thus joining the margin of the incuse square with the truncation of Athena's head. For no. 14 Miss Atlan had to rely only on the rather dark illustration in D. Schlumberger's *L'argent grec dans l'empire achéménide* (pl. ii. 19), but an original photograph taken by Dr. A. D. H. Bivar some years ago in Kabul shows that the reverse die A12 has a hair-like flaw continuing the forward line of Athena's necklace, which confirms its identity with A14, where the same flaw appears, see H. Weber collection, pl. 264, 7353 [**Pl. XVI. 6**].

Nos. 15, 20, 21. All obverse and reverse dies are listed as different, though the dies of 20 are certainly the same as those of 21; no. 20 [**Pl. XVI. 7**] has entered the Oxford collection in recent years, and identical flaws prove that its obverse is in a somewhat later state than that of 21. (No. 20 and no. 19 are much under-sized on pl. i, but are reproduced again at their true scale on pl. viii.) As to 15, though I have not a cast available, its obverse die appears to be an earlier state of the die of 20 and 21, since the same flaw is visible in the upper left field. These three coins are thus related as follows:



No. 17. The Oxford collection has recently acquired another specimen of these dies, on which the cable border of the obverse (barely distinguishable on pl. i) is clearly seen **[Pl. XVI. 9]**.

Nos. 18 and 22. Miss Atlan has rightly noted in her catalogue the presence of two small palm trees as a symbol to the right of the pomegranate on the obverse of 18 (Ö17) **[Pl. XVI. 10]**; but part of the same symbol is to be seen on the obverse of 22 (Ö21) **[Pl. XVI. 11]**. Ö17 and 21 are thus the same obverse die linking the reverses A16 and A20.

Nos. 20 and 21. See above under no. 15. In addition, through the kindness of Mrs. S. Hurter of Bank Leu, Zürich, I have recently seen a coin with reverse A18/19 but with an obverse die not otherwise known **[Pl. XVI. 8]**. The coin is overstruck apparently on one of the hoplite/triskeles issues of Aspendus, since the undertype has an E at the edge of an incuse square as part of its reverse type (cf. no. 43, below).

No. 23, 1. For Ball XIX, read Basel XIX.

Nos. 23 and 24. So far as I have been able to check, the reverse die of 23, 1 (A21) is identical with that of 24, 1 (A22), so that nos. 23 and 24 should be conflated; on the latter the obverse die (Ö22) has developed a major flaw.

No. 37, 1. For Jameson 1953 read Jameson 1593. Add another specimen from these dies in Basel list 187 (Feb. 1959), 8.

Nos. 36, 37, 38. The obverse of 37 (Ö34) has a small horizontal flaw on the lower-left edge of the pomegranate (visible on pl. ii); the same flaw appears on the obverse of 38, 2, which is, nevertheless, listed as a different die (Ö35). Some other examples, however, of 38 do not show the flaw (e.g. 38, 1 and 4), though the die is undoubtedly the same, and seems to have passed through two stages represented on pl. ii by Ö35 (without flaw) and Ö34 (with flaw). Finally, though on the photographic evidence available I cannot be certain, Ö33 (no. 36) looks very much like a still-later state of the same die. Taking into account the close similarity of reverses A36 (no. 38) and A37 (no. 39) the following sequence can be postulated:

	No flaw on obverse		*With flaw on obverse*	
No. 39 (rev. A37)	No. 38, 1 (rev. A36)	→	No. 38, 2 (rev. A36)	→ ? No. 36, A1 (rev. A34)
	No. 38, 4 (rev. A36)		No. 37, 1 (rev. A35)	

Nos. 41 and 42. I can detect no difference between the reverses A39 and A40, which seem to be the same die.

No. 43. The Oxford collection has recently replaced no. 43, 4 with a specimen from these same dies **[Pl. XVI. 12]**, but overstruck upon a rare variety of the hoplite/triskeles series of Aspendus (Bab. *Traité* xxiii, 21) **[Pl. XVI. 13]**; the rather elaborate Aspendian reverse on which the

triskeles is mounted on a lion is presumably one of the latest of the series, and thus helps to confirm the very late fifth-century date for no. 43 suggested by the Celenderis hoard (*NC* 1962, 1 ff.).

On the basis of the above notes I would suggest the following sequence for the fifth century (where the symbol → indicates both a die link and a sequence):

Group I: 1, 2
Group II: 4–9
Group III: 14 → 16, 15 → 21 → 20 → Bank Leu **[Pl. XVI. 8]**, 19, 18 → 22, 17, 23/4 → 25, 26
Group IV: 34, 35, 39, 38 → 37 → 36, 40–4.

Chronology. In view of the paucity of securely fixed points judgement here is bound to be subjective and to depend very much upon a general view of the development of coinage in this whole area. The Celenderis and Side hoards (pp. 177 f.), which undoubtedly account for the relatively high survival rate of some of the later issues, indicate a very late fifth-century context for the final Athena heads (nos. 34–44), and Miss Atlan has accordingly adopted c. 400 B.C. as the terminal date of Group IV.

For the earlier Athena heads the Pegasi of Corinth and its colonies afford some comparative material, though the resemblances are not usually very close. At Side all the later Athena heads (from no. 23) wear helmets with crests; such helmets, however, are unknown in the series of Corinth itself, though an occasional example does occur at Leucas in this general period. On Miss Atlan's date for most of these crested helmets (430–400 B.C.) this deviation from the type used at Corinth may be explained by the probability that the Peloponnesian War either greatly curtailed or even terminated Corinthian issues for the time being. Among the remaining Athena heads (without crests) a few do recall Corinthian dies: A17 (no. 19) is curiously reminiscent of Ravel's T231, to be dated no earlier than c. 450 B.C., and A16 (no. 18) recalls dies such as Ravel T242 and 243, which I would place in the 430s; the scale of such heads as A15 (no. 17) and A20 (no. 22) suggests Corinthian heads of about the same period. Allowing for a certain time lag before metropolitan influences affected peripheral areas of the Greek world, I would judge that all the Sidetan issues on which Athena wears a Corinthian helmet are later than 450, a date slightly lower than c. 460 which Miss Atlan suggests.

Earlier issues of staters are divided by Miss Atlan into two groups. The first, employing two obverse dies only, has a dolphin or dolphins as reverse types (nos. 1–2), and is allotted the date span c. 490–479. The second (nos. 4–9), employing five obverse dies has heads of Athena (in wreathed Attic helmet) or Apollo as reverse types, and is thus reasonably regarded as a precursor of the next group with the head of Athena in Corinthian helmet; the second group is attributed to the years c. 479–460 B.C. While the wreath on Athena's helmet may reasonably be seen as a reflection of the post-Persian Wars version of the Athenian tetradrachm, it may be doubted whether this coinage would have had any influence in Pamphylia as early as 479; the period after the battle of the Eurymedon seems more likely, and I would prefer to think of the decade 460–450 B.C.

Similarly, in the absence of compelling evidence to the contrary, I find it hard to believe that the very small group of the earliest staters (nos. 1–2) can go back to 490–479. They have fully developed reverse types, yet in Lycia, which was surely in closer contact with the central Greek world than was Pamphylia, there is no evidence for reverse types until after 480 B.C. Moreover, the dolphins of the reverse types of nos. 1 and 2 find close parallels (as Miss Atlan points out) on certain Lycian issues, for which, however, Dr. Mørkholm has recently suggested a date c. 460–450 B.C. based on hoard evidence (*JNG* 1964, 69). In this case the first issues of Side would be no earlier than c. 460 B.C.

In conclusion, I would suggest the following somewhat schematic chronology for the fifth-century staters of Side:

Groups I–II	460–450 B.C.	7 obverse dies
Group III	445–425 B.C.	8 obverse dies
Group IV	425–400 B.C.	5 obverse dies

Finally, this is perhaps the occasion to correct the record of the Side hoard (Noe 978). Miss Atlan describes this hoard on p. 177 and mentions it on p. 131, n. 104, and p. 173, n. 262; in each place she dates its burial in or after 392 B.C. on the strength of the latest coin in the hoard attributed to Baal-ram, king of Citium (on p. 131, n. 104, for 'älteste,' read 'späteste'; cf. p. 173, n. 262). This attribution is due to Seltman, the original editor of the hoard (*NNM* 22), but is certainly wrong. The coin has since entered the collection of the American Numismatic Society, and has been republished by Noe (*MN* vi, 90 and pl. xiv. 2), who seems to have been unaware of its

origin in the Side hoard; he, however, read the name of the issuing king correctly as Azbaal. Seltman was no doubt misled by the fact that the coin was overstruck upon a *tortoise* of Aegina, which was at that time confidently dated to the early fourth century, and therefore could not have been overstruck by a fifth-century issue; but since then such overstrikes (of which there is now another at Oxford, **Pl. XVI. 14**) together with the evidence of hoards have combined to show that some tortoises were circulating before 431 B.C. (cf. Robinson, *NC* 1961, 111 f.). The dates of Azbaal cannot be precisely fixed but probably span parts of the third and fourth quarters of the fifth century. In this case the coin of Azbaal provides no evidence for the date of burial of the Side hoard, for there is every reason to suppose that Azbaal's coin is earlier in date than the latest issues of Side in that hoard.

PLATE XVI

1. Side. Paris; Atlan no. 6, 1.
2. Aspendus. In trade, Spink.
3. Uncertain mint. A.N.S., New York.
4. Uncertain mint. B.M.
5. Uncertain mint. Berlin.
6. Side. B.M., ex. H. Weber 7353; Atlan no. 16, 1.
7. Side. Oxford ex. Side hoard (*NNM* 21, pl. i. 4); Atlan, no. 20, 1.
8. Side. Bank Leu, Zürich; Atlan—(rev. A18/19).
9. Side. Oxford; Atlan no. 17.
10. Side. Berlin; Atlan no. 18, 1.
11. Side. Berlin; Atlan no. 22, 1.
12. Side. Oxford; Atlan no. 43.
13. Aspendus. Paris; Bab. *Traité*, pl. xxiii. 21.
14. Citium, Azbaal. Oxford.

THE CLASSIFICATION OF CAPPADOCIAN COINS

By OTTO MØRKHOLM

[SEE PLATE V]

DURING the last decade the readers of this *Chronicle* have been presented with a fair number of papers on the royal Cappadocian coinage.[1] I have no particular interest in continuing the discussion with Professor Simonetta for its own sake, but as I have now collected more material concerning the Cappadocian coins down to and including Ariarathes VIII, it may be worth while to publish a preliminary survey covering this field. Although I have lost confidence in my ability to convince Professor Simonetta, I think that other scholars may be more susceptible to my argumentation.

I. THE BRONZE COINAGES

During the recent discussion the bronze coins of the Cappadocian kings have so far received slight attention. I append a list of some selected coins, which will show the development of the coinage, as I see it, and give a sufficient basis for the attributions.

Ariaramnes

1. *Obv.* Head of dynast r. in *kyrbasia* with flaps brought forward to cover chin.
   Rev. Horse standing r. feeding; above 𐡀, below 𐡄 and 𐡕.
   7·89 gm. Paris, *Inv. Waddington*, no. 6830, pl. xix. 19; Regling, *ZfN* 1935, 3, no. 3; Simonetta, *NC* 1961, 27, no. 5. **Plate V. 1.**

2. *Obv.* Similar to no. 1.
   Rev. Horseman galloping r., holding in r. hand spear; above 𐡀𐡐; below 𐡕.
   3·14 gm. Glasgow, *Hunter* ii, p. 573, 2, pl. lxii. 3; Regling, *ZfN* 1935, 3, no. 2; Simonetta, *NC* 1961, 27, no. 2. **Plate V. 2.**

[1] *NC* 1961, 9–50; *NC* 1964, 83–92; *NC* 1967, 7–12 (Simonetta). *NC* 1962, 407–11; *NC* 1964, 21–5 (Mørkholm). See further Mørkholm in *Essays in Greek Coinage Presented to Stanley Robinson* (1968), 241–58.

3. *Obv.* Similar to no. 1.
Rev. Same type as no. 2; above APIAPAMNOY, in l. field ⌶ and Δ, below horse star.
3·98 gm. *SNG* (von A) 14 Heft, no. 6257; cf. Regling, *ZfN* 1935, 2, no. 1; Simonetta, *NC* 1961, 27, nos. 1 and 3. **Plate V. 3.**

4. *Obv.* Similar to no. 1.
Rev. Same type as no. 2; above [APIAPAMNOY], below ΣΔ and TYANA.
4·63 gm. Paris, *Inv. Waddington*, no. 6800, pl. xix. 11; Regling, *ZfN* 1935, 5, no. 6; Simonetta, *NC* 1961, 27, no. 4*b*. **Plate V. 4.**

Ariarathes III

5. *Obv.* Head of dynast r. in pointed *kyrbasia* tied below chin.
Rev. Horseman galloping r., holding in r. hand spear; in r. field palm tree; above APIAPA; below ΔΣ and TYANA.
5·25 gm. Paris, Cabinet des Médailles; Regling, *ZfN* 1935, 6, no. 8; Simonetta *NC* 1961, 49, no. 1*b* (uncertain bronze). **Plate V. 5.**

6. *Obv.* Similar to no. 5.
Rev. Upper body of facing goddess, wearing *polos*, holding in extended r. hand flower, placed between two seated sphinxes; on r. downwards ΒΑΣΙΛΕΩΣ, on l. upwards APIAPAΘOY; above T Y.
5·98 gm. *SNG* (von A) 14 Heft, no. 6258. **Plate V. 6.**

Ariarathes IV

7. *Obv.* Head of king l. in pointed *kyrbasia* with flaps hanging loose.
Rev. Athena seated l. on throne, holding on extended r. hand Nike with wreath, her shield leaning against throne; on r. downwards ΒΑΣΙΛΕΩΣ, on l. downwards APIAPAΘOY. Double-struck.
5·91 gm. Paris, Cabinet des Médailles; Simonetta *NC* 1961, 28, no. 2 (Ariarathes III). **Plate V. 7.**

8. *Obv.* Similar to no. 7.
Rev. Archer shooting r.; on l. upwards ΒΑΣΙ, below and r. upwards APIAP.
1·94 gm. Paris, Cabinet des Médailles. Simonetta, *NC* 1961, 49, no. 6 (uncertain bronze). **Plate V. 8.**

9. *Obv.* Head of king r. in diademed tiara.
Rev. Similar to no. 7.
5·41 gm. *SNG* (von A) 14 Heft, 6260. **Plate V. 9.**

10. *Obv.* Head of Athena r.
Rev. Nike standing l., holding in r. hand wreath, in l. palm branch; on r. ΒΑΣΙΛΕΩΣ, on l. APIAPA[ΘOY].

10·40 gm. American Numismatic Society, New York. Simonetta, *NC* 1961, 28, no. 4*a* (Ariarathes III). Overstruck on bronze of Seleucus IV of Syria. **Plate V. 10.**

11. *Obv.* Humped bull standing r.
Rev. Bow in case; on r. ΒΑΣΙΛΕΩΣ, on l. ΑΡΙΑΡΑΘΟΥ; countermark: head r., behind ΕΡΠ.
5·20 gm. American Numismatic Society, New York. Simonetta, *NC* 1961, 50, no. 10 (uncertain bronze). **Plate V. 11.**

Ariarathes IV or V

12. *Obv.* Bust of Artemis l., at shoulder quiver.
Rev. Stag, standing l.; on r. ΒΑΣΙΛΕΩΣ, on l. ΑΡΙΑΡΑΘΟΥ.
3·66 gm. Paris, Cabinet des Médailles. Simonetta, *NC* 1961, 50, no. 8 (uncertain bronze). **Plate V. 12.**

The coins nos. 1–4 of the list above have always been ascribed to Ariaramnes, who ruled Cappadocia as a dynast around the middle of the third century B.C. I have, however, changed the order of the various issues. It seems logical to me to place the issues with the monogram ΑΡ or ΑΡ (which can only be read APIAPAM) before issues 3–4 with the name written in full. The order of nos. 1–2 is then established by the reverse types, that of no. 2 being carried over to issues nos. 3–4. On issue no. 4 the city name of Tyana makes its appearance.

Issue no. 5 has generally been relegated among the Cappadocian bronzes of uncertain attribution in spite of the fact that the reverse type and inscription clearly mark it as continuing and developing the last issues of Ariaramnes. Issue no. 6 is of special importance; there can be no doubt that the obverse renders the same portrait head as no. 5. But while issue no. 5 is inscribed APIAPA, we have on no. 6 the clear legend ΒΑΣΙΛΕΩΣ ΑΡΙΑΡΑΘΟΥ. These coins, then, were issued by the ruler who first assumed the title of king and transformed a petty dynasty into the kingdom of Cappadocia, an achievement which by common consent has been ascribed to Ariarathes III, son and successor of Ariaramnes, who reigned from an unknown date in the second half of the third century B.C. until his death in or shortly after 223 B.C.[1]

[1] The correct attribution was already made by H. von Aulock in his *SNG* 14 Heft, nos. 6258–9. The coins with the same reverse type as our no. 6 from Anisa and Morima (Regling, *ZfN* 1935, 7 ff., nos. 9–11) were undoubtedly also struck by Ariarathes III. For the assumption of the royal title by Ariarathes III see Strabo XII, 1, 2.

The coins nos. 7–9 show a very youthful head of a king. Nos. 7 and 9 have been ascribed to Ariarathes III, but with the attribution of coins nos. 5–6 to this king, the following coins in the list have to be transferred to his successor, Ariarathes IV (c. 223–c. 164 B.C.). This also applies to no. 8 (placed by Simonetta under uncertain bronzes) which shows the same portrait as no. 7. The youthful portrait of all these coins is in perfect accordance with my attribution, because we know that Ariarathes IV was quite young at the time of his accession.[1] The two series, here represented by nos. 7–8 and 9, are distinguished by the different head-dresses worn by the king, but I see no reason to doubt their attribution to the same man. They were issued during the first part of his reign before c. 200 B.C.

The following coins, nos. 10–12, show no royal portrait. However, the date of no. 10 is established by the fact that it has been overstruck on a serrated coin of Seleucus IV (187–175 B.C.) from Antioch.[2] This *terminus post quem* places the issue c. 180–170 B.C. The specimen here listed of the issue no. 11 has the same serrated edge and was presumably also overstruck on a Seleucid coin, although no traces of the underlying types have been preserved. It is true that this fabric was used at the Antioch mint by the Seleucid kings from Seleucus IV down to Alexander II (128–125 B.C.), but, nevertheless, it seems preferable to me to regard no. 11 as the smaller denomination of no. 10 and ascribe it to Ariarathes IV. For no. 12 we have no certain evidence. It may have been struck by Ariarathes IV during the last years of his reign, or it may belong to the first years of Ariarathes V, before the introduction of his ample drachm coinage with the epithet *Eusebes* (below p. 26).

II. THE TETRADRACHM OF ARIARATHES IV

In his last paper Simonetta has pointed out rightly that my new dating of the Cappadocian coins derived from the attribution to Ariarathes IV of a silver tetradrachm in Paris which was earlier ascribed to Ariarathes III. I am sorry not to be able to follow his friendly advice and retract my former opinion.[3] In view of the crucial importance of this coin it is necessary, even at the expense of some repetition, to deal with it once more.

[1] Diodorus Siculus xxxi, 19, 6; Justinus xxix, 1, 4. For the date of his accession see Polybius iv, 2, 5–8.

[2] For the type see *SNG* (Cop.) part 35, nos. 174–5.

[3] *NC* 1967, 12. For illustrations of the coin see *NC* 1961, Pl. II. 5 and *NC* 1962, Pl. XX. 1.

My arguments for the new attribution are two. In the first place the fillet border surrounding the portrait points to a date after the accession of Antiochus III in 223 B.C., who first introduced this kind of border on his silver issues from Antioch. As Ariarathes IV succeeded to the Cappadocian throne at about the same time, this fact alone is strong evidence for dating this coin to his reign. Moreover, the reverse symbol, owl perched on a bunch of grapes, and the reverse monogram are found on a tetradrachm of Antiochus IV from the mint of Soli in Cilicia.[1] Simonetta has repeatedly told us that owls and bunches of grapes are common as coin types and symbols, and in this he is indisputably right.[2] What he cannot, or will not, grasp is the simple fact that I am not talking about these elements in isolation. It is their combination which creates the unique connection between the two coins. As the 'owl on grapes' symbol belonged to the mint of Soli, the explanation must be that Antiochus IV allowed his friend and ally Ariarathes IV to strike an issue of tetradrachms at his Cilician mint, presumably because it was technically impossible to produce these coins in backward Cappadocia. As far as the portrait is concerned, it fits well enough with my dating. In or about 170 B.C., when the coin was struck, Ariarathes IV will have been about 60–65 years of age.

III. OROPHERNES AND ARIARATHES V

Concerning the date of Orophernes' usurpation of the Cappadocian throne, Ariarathes V's flight to Rome, and his subsequent restoration by Attalus II of Pergamum, there ought to be no need for further discussion. A passage in Polybius (xxxii, 10) fixes the sojourn of the Cappadocian king in Rome to the years 158–157 B.C. It is pathetic to see Simonetta cling to his wrong dating of these events to 161–159 B.C., alleging as evidence another Polybian passage (xxxii, 12) which cannot be used for precise dating. In this connection Simonetta calls my translation of the second passage 'personal and incorrect'.[3] It is neither. In the first place I took special precautions to stress that I was using the Loeb translation of W. R. Paton. Secondly, there is no doubt that the word *πρώτον* in Polybius is best taken as an adjective to *δείγμα*. Simonetta takes *πρώτον* to be an adverb, but the irony

[1] *MN* xi, 1964, 59, Antiochus IV, no. 2 (pl. xiii. 1). See also Mørkholm, *Antiochus IV of Syria* (1966), 55.
[2] *NC* 1964, 89; *NC* 1967, 8.
[3] *NC* 1967, 9–10.

of the matter is that, even so, the passage becomes no better for dating purposes. In a short fragment like this the exact relation in time of the word 'first', whether adjective or adverb, to other events cannot be established. It is quite arbitrary to maintain that 'first' here means 'in the first year of Attalus' reign'. In his dealing with this passage Simonetta shows no feeling for language at all, and his assertion that it can be used to 'nullify' the other Polybian passage, which contains a Roman consular date, is plain and unequivocal nonsense.

Turning to the coins of Ariarathes V (earlier ascribed to Ariarathes IV) their attribution follows from that of the last bronze coins of Ariarathes IV, which show that this king, down to the end of his reign, used the simple legend ΒΑΣΙΛΕΩΣ ΑΡΙΑΡΑΘΟΥ. There is no reason at all to assume that he added the epithet ΕΥΣΕΒΟΥΣ on his silver only, while preserving the shorter form of title on his bronze.[1] All analogies from the Seleucid coinage show that epithets were also used on the bronze coinages, even for very small denominations.

In this series we come up against the vexed problem of the numerals in the exergue of the coins. That they are numerals cannot be doubted; that they are regnal years, as commonly assumed, cannot be universally true. It becomes obvious when we are dealing with the coinages of Ariarathes VI and VII, but even for Ariarathes V there is room for some doubt. Let us look at his extensive series of drachms; the material known to me can be tabulated as follows:

Serial number	*Number of specimens*	*Number of obverse dies*
ΗΚ	1	1
ΘΚ	3	1
Λ	6	3
ΑΛ	14	4
ΒΛ	16	5
ΓΛ	244	77

The most outstanding feature is, of course, the enormous output of drachms marked ΓΛ. Is it really feasible that the Cappadocian mint or mints produced this huge mass of coinage during a single year? The seventy-seven obverse dies (and more may well turn up) represents, at a minimum reckoning, a production of 770,000 drachms or nearly 130 talents of silver.[2] Although Ariarathes V at the end of his

[1] This argument was used by Simonetta himself in *NC* 1961, 12. In *NC* 1967, 9, he has, rather carelessly, thrown his former sound demonstration overboard.

[2] See Sellwood, *NC* 1963, 229.

reign undoubtedly needed money for the army which he led to the aid of the Romans in their war against Aristonicus (where he was killed himself), it is hard to think that he would spend so much for this purpose.

However, it may be possible to reconcile the evidence from the number of obverse dies with the theory that ΓΛ stands for a regnal year. As Ariarathes V became king in 164 or 163 B.C. and died in 132–130 B.C., the thirty-third year was presumably his last. From Justinus we know that his queen, Nysa, having assumed the regency for their children, killed five of them in order to preserve the power in her own hands.[1] The drachm in Paris,[2] issued by Nysa and Ariarathes VI jointly, must come right at the end of her regency, when killing was no longer expedient or possible. There may then be an interval of some years between the death of Ariarathes V and the joint issue of Nysa and her surviving son. It is just possible that drachms dated to the last year of the dead king were produced during this period in order not to draw the attention of the public to the massacre within the royal house by frequent changes in the coin issues. The explanation of the mass of coins marked ΓΛ may be that they were struck over a period of four or five years, say 131–127 B.C., but even so the increase in coinage, when compared with the earlier issues, is considerable. This explanation is, of course, hypothetical, but seems to me possible. On the other hand, if the figures HK to ΓΛ are regnal years, I still find it wildly improbable that the coins with E in the exergue (which are die-linked with coins marked ΓΛ) were issued in year five.[3] I do not believe that an obverse die was kept idle at the mint for twenty-seven years and then used again without visible traces of decay. Moreover, the portrait of the E coins is quite different from all the obverse portraits from the years HK to BΛ.

IV. ARIARATHES VI AND VII

Concerning the attribution of the coins of Ariarathes VI and VII there is no dispute between Simonetta and me, except that I have moved a few issues formerly ascribed to Ariarathes VI down to the reign of Ariarathes VIII (c. 99–98 B.C.).[4] But here the problem of the exergual numerals becomes urgent. The highest numbers are fifteen for Ariarathes VI and sixteen for Ariarathes VII. As the last year of

[1] Justinus xxxvii, 4–5. The queen's name is here wrongly given as Laodice.
[2] *NC* 1961, 35, Pl. III. 22.
[3] *NC* 1961, 14, n. 1.
[4] *Essays Robinson*, 252 ff.

Ariarathes VI may be identical with the first year of Ariarathes VII, the two kings will have reigned for thirty years, on the assumption that the figures represent regnal years. Simonetta consequently gives the dates 130–116 B.C. for Ariarathes VI and 116–101 B.C. for Ariarathes VII.[1] But here we run into serious difficulties with other historical evidence. In the first place, the regency of Nysa is compressed into a single year, 130 B.C., which is hardly compatible with Justinus' account of her domestic troubles and the murder of five of her sons. For this reason, the accession of Ariarathes VI has been dated by some historians to c. 125 B.C.[2] which seems possible, although Justinus' authority is not the best, especially concerning dramatic and sensational episodes like this one. Secondly, and more important, the accession of Ariarathes VII, under the guardianship of his mother Laodice, took place at a time when the great Mithradates VI was already in full control of Pontic policy. As Mithradates was born in 132/1 B.C.,[3] this can hardly be earlier than 115 B.C.[4] The subsequent accession of Ariarathes VII is, therefore, generally dated to 112 or 111 B.C.[5]

As a matter of fact, the dates for the reigns of Ariarathes VI and VII worked out by Simonetta on the basis of the exergual numerals, are hard to reconcile with the historical evidence. Moreover, from the coinage of Ariarathes VI, I have already been able to give absolutely certain proof that the numerals do not represent regnal years. The fact that coins marked EI (= 15) share an obverse die with coins marked Γ (= 3), and that the Γ coins, on account of the greater wear of the obverse die, must be the later ones, completely shakes the foundation of the earlier theory.[6] I think that the future arrangement of the coins of the two Cappadocian kings here discussed must be based on stylistic criteria and on the other monograms

[1] *NC* 1961, 16–18.

[2] Reinach, *RN* 1886, 316, dates the accession '130?'. Later, however, in *Mithridate Eupator* (1890), 90 and 426, he changed this date to 125 B.C., leaving the years 130–125 B.C. to the regency of Nysa. Rostovtzeff, *CAH* ix, 235, speaks of 'a period of protracted anarchy' after 130 B.C.

[3] According to Appian, *Mithr.* 112, Mithradates was sixty-eight or sixty-nine years old at his death in 63 B.C. and reigned for fifty-seven years; according to Strabo X, 4, 10, he was eleven years old at his father's death (120 B.C.).

[4] Magie, *Roman Rule* i, 195, and E. Will, *Histoire politique du monde hellénistique* ii (1967), 392, both prefer a date about 112 B.C., while Reinach, *Mithridate Eupator* (1890), 55, favoured 111 B.C.

[5] Reinach, *RN* 1886, 316; idem, *Mithridate Eupator* 90 and 476; Rostovtzeff, *CAH* ix, 235.

[6] *NC* 1964, 22–3. In his last paper (*NC* 1967, 7–12) Simonetta has, curiously enough, omitted to comment on this vital point.

or letters in the field, not on the numerals in the exergue, the function of which for the moment eludes any attempt at explanation. It should be noted that the picture may be complicated by the existence of more than one mint in Cappadocia during this period.

V. CONCLUSION

Regarding the first issues of Ariarathes IX (formerly ascribed to Ariarathes V) and the group of coins attributed by me to Ariarathes VIII (formerly ascribed to Ariarathes VI) I feel no need to repeat my arguments, as they have been presented in detail in a recent paper.[1] However, the strange concatenation of objections to my theories, presented by Simonetta in the *addendum* to his last paper, invites some comments. In the first place, when I have demonstrated, by the objective criterion of the progressive deterioration of a common obverse die, that he was wrong in reading E on a tetradrachm of Ariarathes IX, because later coins with the same obverse are marked B,[2] Simonetta maintains that 'it is just a matter of probabilities' and that the reading E is the more plausible.[3] By this convenient vagueness Simonetta simply discards the proper study of individual dies, for which he has apparently very little inclination.

Secondly, I have maintained that some hoard evidence, so far unpublished, was in favour of my reattributions.[4] Instead of waiting for the final publication of this evidence to see, if I was right or wrong, Simonetta evolves a most peculiar theory concerning the composition of hoards in general, claiming that 'hoards, particularly when they seem to have been built up over a considerable time, tend to be composed almost only of unworn or at most slightly worn coins, which is consistent with the logical practice of any hoarder, to keep the unworn and to discard the worn coins'.[5] That savings hoards of this kind do exist is a well-known fact, but to extend this definition to *all* hoards and, on this basis, discuss a hoard which one has never seen, goes certainly far beyond mere rashness. The great Cappadocian hoard, of which I have now inspected more than 700 coins, is certainly a currency hoard with a marked difference of wear between the various issues.[6]

[1] *Essays Robinson* 241–58.
[2] *Essays Robinson* 242 f., pl. 30.
[3] *NC* 1967, 10.
[4] *Essays Robinson* 257 f.
[5] *NC* 1967, 11.
[6] For the various kinds of hoards and for the evaluation of hoard evidence see M. Thompson, *NC* 1962, 308–10.

From the considerations above it will be obvious to everybody that I still maintain my new classification of Cappadocian coins down to Ariarathes IX. Simonetta's last intervention in the discussion has in no way shaken my position. To tell the truth, I have found in his paper a mixture of deliberate misrepresentation of my arguments, inappropriate neglect of part of the evidence, and a total lack of understanding of hoard evidence as well as the evidence from the study of individual dies. Consequently, I can only return the compliment to Prof. Simonetta, asking him to review the whole problem with less bias and more respect for the material. To go on merely repeating obsolete theories and invoking the authority of Eckel, Reinach, and Wroth will take us nowhere.

APPENDIX

Synopsis of the attributions of Cappadocian coins from Ariaramnes to the beginning of the reign of Ariarathes IX:

Simonetta (*NC* 1961, 27 ff.)	*Mørkholm*
Ariaramnes, nos. 1–7	Ariaramnes
Ariarathes III, nos. 1–4	Ariarathes IV
Ariarathes IV, nos. 1–7, 9–28	Ariarathes V
no. 8	Barbarian imitation
no. 29	= Simonetta, Ariarathes IV, no. 19
no. 30	Non-existent?
Ariarathes V, nos. 1–7, 11–12	Ariarathes IX, series I
nos. 8–9, 16, 21	Ariarathes IX, series II
nos. 10, 17–18, 20	Non-existent; = Simonetta, Ariarathes V, no. 9
nos. 13–15, 22–3	Barbarian imitations[1]
no. 19	= Simonetta, Ariarathes IX, no. 6 (?)
Orophernes, no. 1	Orophernes
Nysa and Ariarathes VI, no. 1	Nysa and Ariarathes VI

[1] Simonetta, *NC* 1967, 12, seems worried, because I have on an earlier occasion described these coins as barbarian imitations 'without giving any explication or justification for this statement'. The explanation is quite simple. Anybody looking at the illustrations of the coins *NC* 1961, Pl. III, nos. 18–19, will agree that they *are* barbarian imitations, and it seems unnecessary to mobilize the highest scholarship in order to demonstrate the obvious, especially when Professor Simonetta himself in describing them (*NC* 1961, 33–4) uses expressions such as 'barbarous style', 'very barbarous style', 'meaningless inscription'.

Simonetta (*NC* 1961, 27 ff.)	*Mørkholm*
Ariarathes VI, nos. 1–3, 9*a*, 10–13, 16–23	Ariarathes VI
nos. 4–5, 7–8; 9*b*	Ariarathes VIII
no. 6	= Simonetta, Ariarathes VI, no. 3
no. 14	Presumably = Simonetta, Ariarathes VI, no. 9*a*
no. 15	= Simonetta, Ariarathes VI, no. 22
Ariarathes VII, nos. 1–5, 7–14	Ariarathes VII
no. 6	Barbarian imitation
Ariarathes IX, no. 2	Non-existent; = Simonetta, Ariarathes IX, no. 4
Uncertain Bronze Coins, nos. 1–4	Ariarathes III
no. 5	Not Cappadocian; cf. *NC* 1961, 119 ff.
nos. 6, 8–10	Ariarathes IV
no. 7	Not Cappadocian; cf. *SNG Cop.* part 27, no. 172 (Hieracome in Lydia)

MONNAIES-À-LA-CROIX

By D. F. ALLEN

THIS paper is a modified version of the Presidential Address given at our Annual General Meeting on 18 June 1968, in which I tried to summarize the state of knowledge on what are known as *monnaies-à-la-croix*. It is modified because during a subsequent visit to France I was able to gather new material, much of it unpublished, which has altered several of the conclusions. I hope that in this up-dated version the paper will be of use to British readers, who are to be forgiven if they have difficulty in finding their way through the scattered continental literature on the subject. Apart from the importance of the coinage itself, the theme is of interest because *monnaies-à-la-croix* are one of the rare cases where it is possible to offer a firm chronology as well as a reasonably reliable geography for a pre-Roman coinage in Gaul.

My interest in *monnaies-à-la-croix* derives from a parcel of coins, representing most of the main varieties, from a family home at Pammiers (Ariège), which was shown me by Mr. Michael Herzfeld, to whom they now belong. The coins presumably constituted, or formed, part of a hoard, otherwise unrecorded, from this neighbourhood. The seventeen coins are illustrated on p. 65, **Fig. 7**.[1] The rest of this paper describes the extended quest on which I found myself engaged in pursuit of an adequate basis for the publication of this little find.

Monnaies-à-la-croix are derivatives of the silver drachms of the Rhodian colony of Rhode or Rhoda, the modern Rosas, on the bay of Ampurias. These have the head of a nymph on the obverse and a rose, curiously seen from above or below, on the reverse. The colony lasted from the seventh century B.C. to 197 B.C., when it was destroyed by M. Porcius Cato. Very few coins were issued, and their date is far from certain, but the most likely period seems to be at, or shortly after, the end of the fourth century B.C.[2] There was a

[1] The following are the weights of the coins in the Pammiers hoard: nos. 1–11, Dolphin type, 2·75, 2·37, 2·92, 2·79, 2·79, 3·01, 2·96, 2·95, 2·62, 2·07, 2·69 g.; no. 12, Pictorial type, 2·62 g.; nos. 13–15, Negroid type, 2·90, 2·76, 2·56 g.; nos. 16–17, Triangular type, 2·82, 2·80 g. None of the coins is plated.

[2] G. K. Jenkins, 'Literaturüberblicke der griechischen Numismatik: Spain', *Jahrb. für Numismatik und Geldgeschichte* xi (1961), 80. But the date is not firmly established;

FIG. 1.

parallel issue from the neighbouring and younger Phocaean colony of Emporion, with a Victory over a horse, at the same weight of about 4·8 gm.; this weight does not accord with the prevailing Carthaginian coin standard in Spain, but may represent a sixty-fourth of the prevailing Celtic pound weight.

From the start the drachms of Rhoda were copied, and a Celtic influence quickly appears. It is known that the early copies, like the originals, circulated in southern France [**Fig. 1. 1–7**]; originals are on record from Foix (Ariège) and Castres (Tarn), while early copies are reported as frequent in the district of Castelnaudry (Aude), and there is an authenticated find [as **Fig. 1. 4**] from Labrugière (Tarn) (4·22 gm.), with a wheel on the reverse and one of unspecified type from Boé (Tarn-et-Garonne).[1] The early copies tend to be close in weight to the originals and, from what will emerge later, we can place them confidently in the third century B.C.

The first phase of the coinage ends with the coins from the hoard at Uzech-les-Oules (Lot) [**Fig. 1. 8–9**]. These pieces still weigh 4·35 to 4·7 gm., despite their crude style.[2]

The recorded finds of coins of Rhoda and early imitations, with the exception of the hoard, lie on the route from the Mediterranean to the Garonne and the other great rivers pouring into it or into the Gironde; the hoard itself lies near the Dordogne. These early finds point to the heart of the area in which the *monnaies-à-la-croix* are later found. It seems clear that the early relations of Rhoda were largely with the Celtic people who dwelt along the southern fringes of Gallia Celtica, inland from the Mediterranean; they were neither with the people of the Mediterranean coast nor with the Aquitanians at the foot of the Pyrenees.

The next phase of the coins represents the beginning of the true *monnaies-à-la-croix*, on which the rose of the Rhoda coins has been converted into a cross within crescents, and the angles of the cross have invited gap-filling decoration. These coins are exclusively of silver, with the qualification that an exceptionally large proportion of the later ones are plated. They are found so consistently, in mixed

see, for instance, O. Gil Farrés, *La Moneda Hispánica en la Edad Antigua* (1966), 61, which dates them to the last quarter of the third century B.C.

[1] Foix and Castres, A. Blanchet, *Traité des monnaies gauloises* (1905), 278; Castelnaudry, Blanchet 279; Boé, Blanchet 575, T. 144; Labrugière, M. Labrousse, *Monnaies du Haut-Langedoc de l'Antiquité à nos jours* (1963), 18, n. 8. I could find no evidence at Narbonne, Béziers, Montpellier, or Nîmes of coins of these types found in the coastal belt, but the core of a forgery was found at Ensérune, see p. 39, n. 3.

[2] Blanchet 574, T. 142; *RN* 1885, 284.

hoards, over a well-defined area, to the exclusion of any other coinage, that they must represent, as it were, an economic province. Different varieties developed in different parts of it, but at any given time *monnaies-à-la-croix* of similar weight were acceptable throughout the area, and we find in the very numerous hoards a mixed stream of coinage which it has proved extremely difficult to disentangle.

First the distribution: hoards of *monnaies-à-la-croix* are found in two contiguous areas. The largest area and that in which most hoards have been found lies in the basin of the Garonne, largely along the courses of the great rivers of southern France, the Dordogne, the Lot, the Aveyron, the Tarn, the Agout, the Ariège, the Gimone, and the Baïse. Only two stray hoards are recorded from the Atlantic estuary of this river system, the Gironde. The smaller area lies to the south and west of the watershed, along the rivers which pour into the Mediterranean, the Hérault, the Orbe, and the Aude. This distribution is shown comprehensively on p. 69, **Map 1**; to these hoards there can now be added a number of individual find spots, but they are not shown on it. The hoards and find spots are listed on pp. 62 ff., Appendix A.

This distribution may be turned, at least to some extent, into terms of political geography. The coins are scarcely found in the Gallia Aquitania of Caesar, which lay in Gascony and Béarn, between the Garonne and the Pyrenees. This area was occupied by a medley of small tribes, whose names for the most part are not well understood or located.[1] Strabo tells us that the Aquitani were distinct in language, law, and customs from the Celts.[2] Archaeologically, unlike their Celtic neighbours across the Garonne, with their typical La Tène civilization, the Aquitani were at this time still living in the Halstatt era.[3] Although Augustus extended Aquitania from the Garonne to the Loire, it is plain that *monnaies-à-la-croix* have nothing to do with Caesar's Aquitania.

There is, however, no known ancient name for the collective area, a substantial sector of Gaul, in which *monnaies-à-la-croix* are found. The Mediterranean sector was occupied by the tribe of the Volcae, who were subdivided into the Arecomici to the east and the Tecto-

[1] Caesar *BG* iii, 27, mentions 12 tribes, as examples only, Strabo, *Geog.* iv, 1, refers to 20, while Pliny, *NH* iv, 33, lists 29 by name; Pliny's list presumably contains names attributable to the Augustan extension of Aquitania.

[2] Strabo, *Geog.* iv, 1, 11.

[3] G. Fabre, *Les Civilisations protohistoriques de l'Aquitaine* (1952), 152–8.

sages to the west. The Volcae Arecomici, with their principal oppidum at Nemausus (Nîmes), lay in the region between the Rhône and the Hérault, or possibly the Orb.[1] The Volcae Tectosages lay astride the main route between the Mediterranean and the basin of the Garonne, leading to the Atlantic. On the Mediterranean side their territory certainly included Carcaso (Carcassonne); authorities differ on whether it reached the coast between Narbonne and Beziérs, but, as we shall see, the coins suggest that it did not.[2] Across the watershed, the principal oppidum of the Volcae Tectosages lay at Tolosa (Vieille Toulouse), alternatively described as in the territory of the Tolosates, no doubt a client tribe.[3] Their sway extended inland, perhaps as far as the junction of the Garonne with the Tarn. The Volcae Tectosages are the pivotal tribe for *monnaies-à-la-croix*, and it is their name which is traditionally, but a little misleadingly, attached by French numismatists to the whole series.

Beyond the Tolosates, between the Lot, the Tarn, and the Middle Garonne dwelt the Nitiobroges or Nitiobriges, with their oppidum at Aginnum (Agen).[4] Further to the north, astride the Dordogne, were the Petrocorii, with their oppidum at Vesunna (Périgueux) on the Isle.[5] To the east the Cadurci lay astride the Lot, with their oppidum at Uxellodunum (probably Puy d'Issolud, near Vayrac, though there are other possible oppida nearer to Cahors, which preserves their name).[6] Finally, further east, astride the Tarn and the Dourdou and sharing a hill frontier with the Volcae Arecomici on the Mediterranean side, lay the Ruteni, whose name survives in Rodez.[7]

Irrelevant to this study are the Bituriges Vivisci at the mouth of the Gironde, a branch of the Bituriges Cubi of Berry, with their capital at Burdigalia (Bordeaux), and with them the Medulli of the Médoc area, with their oppidium at Noviomagus, since in general *monnaies-à-la-croix* are not found there, whereas normal Gaulish gold staters

[1] Rice Holmes, *Caesar's Conquest of Gaul* (1911), 502–3.

[2] Ptolemy ii, 10. 6, assigns the coastal strip, including Narbo, to the Tectosages, Strabo, iv, 1, 12, to the Arecomici, while the only oppidum other than Tolosa which Pliny, *N.H.* iii, 36, attributes to the Tectosages is Carcaso. Caesar, *BG* vii, 7, makes it clear that the Tolosates, whom alone Caesar mentions, did not extend to Narbo.

[3] Rice Holmes 480.

[4] Rice Holmes 458, 846; Pauly–Wissowa, Suppl. vol. ix, 1687–8. Livy xxi. 26 refers only to the Volcae and places them, in 211 B.C. on both banks of the Rhône. The Tolosates first appear in the role of a dependent tribe, but by Caesar's time the Tectosages had dwindled in importance and he does not mention them in Gaul. Strabo and Pliny, however, refer to Volcae Tectosages, Mela to Tolosa Tectosagum. The precise connotation of these names remains obscure.

[5] Rice Holmes 467.

[6] Rice Holmes 402, 483 f.

[7] Rice Holmes 469.

are.[1] We can also omit the Vocates or Vasates, apparently an Aquitanian people living on both sides of the Garonne near its junction with the Lot.[2] Like most of the Aquitanian tribes, they do not appear to have used coins.

This, then, is the tally of tribes relevant to *monnaies-à-la-croix*, to all of which we shall refer—Volcae Tectosages (including Tolosates), Volcae Arecomici, Nitiobro(i)ges, Petrocorii, Cadurci, and Ruteni. All these tribes, whose territory forms a block, are mentioned in Caesar's narrative, as well as in subsequent geographers. The Volcae, of both branches, with the Tolosates, are known earlier from historical sources; but it is probable that the Volcae had not reached the area where they lived in historical times until the fourth century B.C. because there is no reference to them in Avienus' *Ora Maritima*, but only to otherwise unknown tribes, which had later vanished.[3]

We are now ready to return to the coins. The first to which attention should be drawn is a little-known piece of great importance, formerly in the collection of A. Blanchet.[4] It is a coin weighing 4·3 g., overstruck with the types of a *monnaie-à-la-croix* [**Fig. 1. 10**], and it therefore sets the time-scale. Although the details of the *monnaie-à-la-croix* are not clear in the illustration, the undertype can readily be identified as one of a series of imitations of drachms of Emporion, whose home lies to the north of the *monnaies-à-la-croix* and only a little south of the Loire. The key hoard comes from Bridiers (Creuze) and its successors became the regular coinage of Poitou.[5] The Bridiers hoard is clearly an early one, and Blanchet was probably right, for reasons which will emerge, in considering both the hoard and this overstrike as belonging to the end of the third century B.C.[6]

Hoards of *monnaies-à-la-croix* begin with a group containing some coins, no doubt the earliest stratum, which weigh over 4 gm., but most weigh between 3·5 and 4 gm. Two hoards in this group, St. Capraise (Dordogne) and Lestrade (Dordogne), lie near the northern fringe of distribution of *monnaies-à-la-croix*; the second was mixed

[1] e.g. Blanchet 561, T. 95; 552, T. 54. In addition evidence exists in Bordeaux and Périgueux Museums for a hoard of staters and quarter-staters, found in 1894, at St. Médard-de-Guizières (Gironde); one of each is in Périgueux, nos. 17 and 227. See also p. 39, n. 2.

[2] Rice Holmes 500.

[3] M. Cary and E. H. Warmington, *The Ancient Explorers* (ed. 1963), 150; Avienus, *Ora Maritima*, 641 f.

[4] *RN* 1907, 321, 16, pl. ii. 16.

[5] Blanchet 551, T. 51. The type overstruck is B.N. Paris 2280–2. This type is the starting-point for B.N. Paris 4445–56, 6003–13, etc.

[6] *Bull. Soc. Ant. de France*, 1911, 137.

with coins of Poitou type, the successors of the Bridiers hoard.[1] It is possible that a third hoard should be added, that from Rouquette, near Eymet (Dordogne), which also contained gold staters, but the details are elusive.[2] These hoards, taken with the group which immediately follows them, indicate with little doubt that *monnaies-à-la-croix* started in the north of the region and spread southwards. Evidence for these coins on the excavated sites of the Mediterranean belt is minimal.[3]

The record has, however, been distorted by the fact that the largest and most important hoard of coins of this phase was found in 1871 at Béziers (Hérault) and it has since been taken for granted that these were coins of the Volcae Tectosages.[4] In fact, the evidence is clear that this is an isolated hoard, well outside the normal area of distribution.[5] The hoard contained some coins weighing up to 4·6 gm., but the greater part lay between 3·5 and 3·65 gm. [**Fig. 1. 12–23**]. Although the general inspiration of these remains the drachms of Rhoda, the coins are not solely derived from this source. On some coins there appears, associated with a characteristic hair style, a pair of dolphins in front of the nymph's face. This and other features show that the influences on the design included the drachms of Emporion, where the same dolphins are present.[6] In the Béziers hoard we encounter on the reverse, for the first time, symbols in the

[1] St. Capraise, Blanchet 552, T. 56; Lestrade, Blanchet 552, T. 55. The drachms of Poitou type were similar to B.N. Paris 6003–13 (see p. 38, n. 5).

[2] Rouquette, Blanchet 552, T. 54. The catalogue of the Lespinas collection at Périgueux describes no. 102 as 'Narbonnaise tête casquée très dégénérée à droite R. Fleur d'Eglantier imitation de la rose de Rhoda. Trouvé à Eymet une pareille au musée d'Agen'. But the coin on the ticket does not correspond and the only coin which might, 71[ter], seems to be on its right ticket (it is like de la Tour VIII, Ch. Robert (c)). Moreover, the museum at Agen denies that it has any such coins. Blanchet records that the gold coins had E or Π; this presumably means that they were like R. Forrer, *Keltische Numismatik der Rhein- und Donaulande*, 323, figs. 520–1, from the Tayac-Libourne hoard. The coins in the St. Médard-de-Guizières hoard, see p. 38, n. 1, were similar to fig. 520.

[3] Amongst the substantial number of *monnaies-à-la-croix* found at Ensérune (Hérault) there was one bronze core of an early copy of a drachm of Rhoda, de la Tour VIII, 'Ch. Robert (d)' (5–72) and one probable, with two possible, coins of approximately the Béziers hoard phase (1930–9, 1947–18–9). Search failed to produce any other site finds elsewhere.

[4] Blanchet 563, T. 100. P. Charles-Robert, 'Numismatique de la province de Languedoc: période antique', *Histoire générale de Languedoc*, ii (1875), 475–520; xvi (1900), pl. i–iv; coins from the Béziers hoard are illustrated as i. 9–10, 11–14, 18–19, 25; ii. 1–3, 6, 12. The *Catalogue du Médaillier de la Société archéologique de Montpellier* (1896), ii, records the acquisition in 1872 of sixty-five hoard coins. It would almost certainly be possible to identify the actual coins from nos. 312–71 and 447–69, perhaps also 386–90, but this has not yet been done. I was unable to gain access to the Médaillier at Béziers. (**Fig. 1. 11** is a comparable piece from Vieille Toulouse.)

[5] But see p. 68, no. 44 for a new find. [6] B.N. Paris 2209; Gil Farrés 129, 130, etc.

angles of the cross, which become so prominent a characteristic of the later phases of the coinage. The symbols start with eyes and ears, but soon include axe, torque, ring, lozenges, or loops. It seems probable that the Béziers hoard contained the products of more than one mint, but there is no present means of distinguishing them.

There is, however, a means of dating, with some accuracy, the burial of the Béziers hoard. In the large find of Roman, Iberian, and other coins at Valera (Cuenca) in Spain there were six damaged and cut *monnaies-à-la-croix*.[1] Two of these were of exactly the same type as one of the apparently later Béziers varieties and two more were of very similar types.[2] The weight of the best-preserved specimens lay between 3·3 and 3·83 gm. The Roman coins show the hoard to have been buried about 160 B.C. Although this dating might be some ten years out either way (Sydenham gives 175–168 B.C. for the relevant coins), this difference is not significant in relation to the *monnaies-à-la-croix*. The Valera hoard shows that the *monnaies-à-la-croix* of Béziers type were in existence in, say, the first quarter of the second century B.C. or very shortly thereafter. It is for this reason that it is possible, with some confidence, to ascribe the earlier coins, weighing more than 4 gm., to the end of the third century B.C.[3]

The evidence of the Valera hoard is confirmed by another hoard from Spain, found at Drieves (Guadalajara), which contained at least two fragments of *monnaies-à-la-croix* of the same kind.[4] The Roman coins in this hoard were, if anything later than those of the Valera hoard (the Sydenham dates are 185–155 B.C.), but again this is insignificant for our purposes. It seems probable that from about this date *monnaies-à-la-croix* were intended to be equated as a denomination with the Roman denarius and in the next phase there

[1] M. A. Basch and M. A. Gorbea, 'El tesorillo de Valeria — nuevas aportaciones', in *Numisma* xiv, 71 (1964), 25–42, pl. i. 9–14. See p. 64, **Fig. 6. 1–6**; 3·60, 3·52, 3·33, 3·33, 3·83, — g.

[2] Compare Valera coin **Fig. 6. 1**, with **Fig. 2. 25–6**; neither is from the Béziers hoard, but they resemble **Fig 1. 24** which was found at Béziers, not necessarily in the hoard. Compare Valera coin **Fig. 6. 2–3** with **Fig. 2. 27**, again not from the hoard but similar. Compare Valera coin **Fig. 6. 4** with **Fig. 1. 22**, a coin from the hoard. The die of **Fig. 6. 1** appears to be counter-marked with a cross.

[3] A. Soutou, 'Contribution au classement chronologique des monnaies préromaines du Languedoc', *Ogam* xviii (1966), 267–74, studies the implications for *monnaies-à-la-croix* of the Valera hoard. The present paper and M. Soutou's were prepared separately, but our conclusions have much in common. [cf. postscript, p. 62 below.]

[4] Jenkins 1961, 139, 265 for the hoard. G. K. Jenkins in *A Survey of Numismatic Research 1960–1965*, Copenhagen, 1967, i, 101–2, draws attention to the *monnaies-à-la-croix* in this find. See **Fig. 6. 7–8**; these photographs have not been published before. For **Fig. 6. 7** cf. *RN* 1839, iii, 26/32; for **Fig. 6. 8** cf. ibid. iii, 27/35; both coins are from the St. Étienne-des-Landes hoard, see following paragraph.

are actual examples which have borrowed from denarii the numeral X behind the head. *Monnaies-à-la-croix* from the two Spanish hoards are illustrated on p. 64, **Fig. 6**.

The Béziers phase is followed by a large series of hoards with weights which range from 3·25 to 3·50 gm. These hoards all lie in the Garonne area. Some are fairly well recorded. The types in general derive from those in the Béziers hoard, but several distinctive strains begin to form. The main hoards are those from La Loubière (Aveyron), Île-de-Noé (Gers), between Mirande and Condom (Gers), and St. Étienne-des-Landes (Lot).[1] Others from Martiel (Aveyron), La Gasse (Aveyron), and Boé (Lot-et-Garonne) may be of the same class.[2] One from Capdenac (Lot) contained slightly lighter coins, weighing from 3·15 to 3·25 gm.[3] A recently discovered hoard from Lattes (Hérault) contained coins from 3·1 to 3·65 gm., with the main emphasis in the bracket 3·25 to 3·5 gm.; this hoard probably carries the implication that another, from Tour-Magne, Nîmes (Gard), was similar.[4] The hoards from Uzech to Tour-Magne are shown collectively on p. 69, **Map 2**, with the coins of Rhoda and the early imitations.

It will make for clarity, at this point, to distinguish the four main streams of *monnaies-à-la-croix* which are found, in varying combinations, in each of these hoards. There can be no doubt that these coins were used interchangeably throughout the area, and little or no doubt either that each stream had a geographically distinct origin. In some cases this origin can be established with certainty, in others there are still open questions.

The first stream may be described as the dolphin series. Their characteristic is to have two dolphins in front of the face on the obverse and an axe in one quarter on the reverse. The earliest coins derive directly from those in the Béziers hoard. The main series,

[1] La Loubière, Blanchet 544, T. 22, 22 *bis*; A. Soutou in *Ogam* xvii (1965), 61–78. Île-de-Noé, Blanchet 561, T. 94; *RN* 1840, pl. xxi. 5–6, 1841, 155–6, pls. vi. 1–12, vii. 1–3; Charles-Robert, pls. i. 24, ii. 22. Mirande/Condom, Blanchet 561, T. 92; *RN* 1841, 156, vii. 11–12, *RN* 1845, viii. St. Étienne-des-Landes, Blanchet 552, T. 53; *RN* 1901, 36–44, 133–53, 297–313, pls. iii, iv, vii, viii. About 120 coins from the St. Étienne hoard remain intact and identifiable at the museum of Périgueux (nos. 237–354). They seem to include a most remarkable example (no. 321) hitherto unpublished, with facing severed head, unlike *RN* 1840, pl. xxi. 5 (Île-de-Noé) (**Fig. 2. 49**).

[2] Martiel, Blanchet 543, T. 20; Soutou 1965, 70, esp. nn. 14–16, 78. La Gasse, Blanchet 543, T. 21; Soutou 1965, 70. Boé, Blanchet 575, T. 144.

[3] Capdenac, Blanchet 574, T. 141; *RN* 1867, 26; *RBN* 1879, 248.

[4] Lattes; R. Majurel, J. Arnal, and H. Prades, *Ogam* xix (1967), 397–433. (I doubt if the potin coin supposed to have been in the hoard formed part of it.) Tour-Magne, Blanchet 559, T. 83, supplemented by Majurel *et al.* 1967, 425–6.

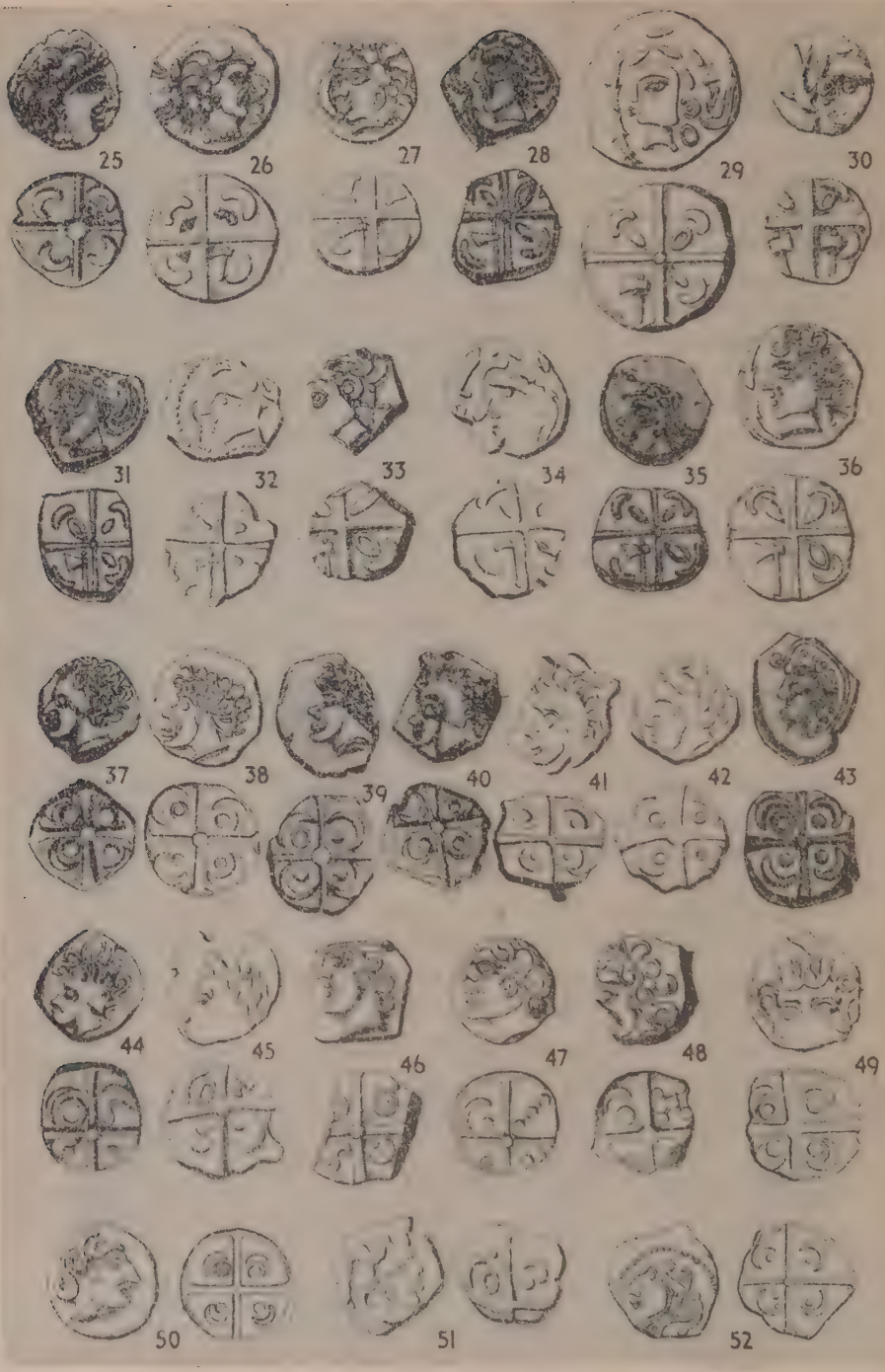

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FIG. 2.

however, consists of coins on which the head has acquired an almost rectangular shape and the dolphins have assumed an exaggerated scale [**Fig. 2. 28–36**]. The reverses follow one of two patterns; the axe is always in the fourth quarter, while two lozenges are either in the first and second or first and third quarters, with a loop in the remaining one. (Occasionally there is a second axe in the third quarter.) Behind the head in the position of the X on Roman denarii, is usually an X, O, < or ←. The typical chopped flans, which distinguish *monnaies-à-la-croix* from almost all other Celtic coins, begin at this point. There are also rare silver obols or minims of similar appearance to the normal pieces [p. 55, **Fig. 5. 137–9**].

Successive stages in the dolphin series are indicated by falling weight. It is probable that the decline went in steps and does not merely represent a continuous process, but this cannot be tested from published records. Coins in the La Loubière hoard, some of which are close to a Béziers model, are the heaviest.[1] The main series can, apparently, be arranged in three broad subdivisions by weight, those over 3 gm., those between 2·5 and 3 gm., and those below 2·5 gm. The weights are, however, very variable and, especially towards the end, about half the coins are plated. The hoards containing the heaviest coins are those from St. Étienne-des-Landes, Île-de-Noé, and Lattes, already mentioned.[2] The middle group predominate in the hoards from Cauzé (Tarn-et-Garonne), St. Sauveur and Blaye (Gironde), Pinsaguel and Anjoulets (Haute-Garonne), Pammiers (Ariège), and Bompas (Pyrénées-Orientales).[3] Coins in the lightest group—I am not certain that they are more than worn or low-weight specimens of the same coinage—occur in the Luzech (Lot) hoard. They also occur, though they do not predominate in the hoards of a later stream, of which those from Paulhe (Tarn) and Mèze (Hérault) may be taken as typical.[4]

In some ways more significant than the hoards are the site finds

[1] Soutou 1965, 70 f. The coins relevant to the dolphin series are his types (*a*)–(*e*), with axe. Types (*f*) and (*g*), without axe are more worn and presumably the earliest. Types (*e*) and (*f*) are common to the Béziers and La Loubière hoards.

[2] See p. 41, n. 1 for St. Étienne-des-Landes and Île-de-Noé and p. 41, n. 4, for Lattes; I do not know the weight of the coins from Tour-Magne.

[3] Cauzé, Blanchet 595, T. 244; Labrousse 1963, 3, 39, etc.; many are in the museum of St. Raymond, Toulouse. St. Sauveur, Blanchet 562, T. 96; *RN* 1867, 15–22. Blaye, Blanchet 562, T. 97; *RN* 1867, 14. St. Sauveur and Blaye clearly lie outside the regular area of distribution. Pinsaguel, Blanchet 560, T. 89; *RN* 1867, 22. Anjoulets, Blanchet 560, T. 88; *RN* 1867, 26. Pammiers, see p. 33, n. 1. Bompas, *RN* 1911, 259–60; *Bull. Soc. Ant. France*, 1911, 132; Soutou 1965, 74, n. 39.

[4] Luzech, Blanchet 574, T. 140; *RN* 1885, 252–4. Paulhe and Mèze, see p. 54, n. 2.

though there are no doubt many more than I have come across. Dolphin coins have been found in large numbers at Vieille Toulouse, and it is clear that they are the predominant and local coinage there.[1] They likewise predominate amongst those found at St. Jean-de-Verges (Ariège).[2] Coins of the La Loubière type have been found in the excavations at La Lagaste (Aude), in the Carcassonne region.[3] Moving south, at no site near the Mediterranean coast do dolphin coins predominate; the characteristic coin here is essentially the bronze as of Iberian derivation (Neroncen, Longostaletes, Kaiantolos, Amytos, Bitovkios, Bitovios, Rigantikos, etc.).[4] But *monnaies-à-la-croix* were used in some numbers. Thus, at Ensérune, *monnaies-à-la-croix*[5] represent some 7 per cent of the total found, and of these more than 50 per cent were of the dolphin type. At Montlaurès, near Narbonne, it is on record that *monnaies-à-la-croix*[6] represent rather less than a quarter (23 per cent) of the finds and the only evidence of their description indicates that they were of the dolphin type. Another site where these coins appear to have been found in some numbers is St. Pons (Hérault).[7] Otherwise, despite the fact that the coins are very common, the scatter on ancient sites is limited.[8] In

[1] M. Labrousse, *Pallas* ix (1960), 177–217, esp. 197–202; ibid. 1963, 24–7, etc. *Monnaies-à-la-croix* constitute 55 per cent of the Azéma collection from the site of Vieille Toulouse.

[2] Unpublished notes of M. Labrousse, made available by kindness of Mr. M. Herzfeld, who studied them in the Museum of Foix.

[3] Soutou 1966, 268, n. 6; *monnaies-à-la-croix* were also found in an unpublished burial from this site, see also *Ogam* xii (1960), 1–15.

[4] My own conclusion from inspecting several public and private collections in the vicinity. It confirms entirely the observations of Sir G. F. Hill in *Les Monnaies de la Narbonnaise avec inscriptions ibériques*, 1933 (cf. *NNM* 44). The coins of Béziers with legend *Betarratis* are extremely rare. In addition, a small number of coins of Tarraco, Emporion, and other Iberian mints are frequently found, together with, usually broken, Republican *asses* with the prow. It seems clear, however, from the circumstances of finding, that these coins were still being regularly used along the coastal belt in the first century B.C.; Hill's dating of the series tends to be too early.

[5] My own observations combined with information from Abbé J. Giry, Nissan.

[6] Hill 3–4; the Rouzaud collection, to which he refers, appears to have been broken up; it is not with the other Rouzaud antiquities in the Museum of Narbonne. But an example in the British Museum from this site is of the dolphin type.

[7] Blanchet 282; Soutou 1965, 73; Majurel *et al.*, 424 mentions 333 examples from St. Pons, but I do not know on what authority, unless this is a reference to what I have called the La Fajolle hoard, see p. 54, n. 2.

[8] Blanchet records several dolphin coins from Montans, Gaillac (Tarn), 505; I am not certain if the references to coins of the Volcae Tectosages from Pommiers (Aisne), 485, Gergovia (Puy-de-Dôme), 501, Barri, Bollem, and Cavaillon (Vaucluse), 503, and Laudun (Gard) 504 are to this type. Forrer 69, fig. 127, records one from Stein am Rhein, Canton Schaffhausen. H. Meyer, *Beschreibung der in der Schweiz aufgefundenen gallischen Münzen*, 1863, 12, ii, 78, gives one found in Geneva or Nyon. Nos. 117 and 120 in the Museum at Périgueux were found at Ecornabœuf, Périgueux. One (with two axes on the reverse) has been found in unpublished excavation at Luzech (Lot), see p. 50, n. 5. This list must be greatly extendible.

particular, it is plain that there was a frontier of distribution at the Orb or Hérault. In the sites to the north-east of these rivers the stray finds of *monnaies-à-la-croix* do not, on present knowledge, contain dolphin types. The find spots of the dolphin series are shown on p. 70; **Map 3**.

The key to the chronology of the dolphin series lies in the Bompas hoard.[1] Here dolphin coins in worn condition, weighing about 2·4 to 2·75 gm., were found with Roman denarii from 139 to 83 B.C. of which the latest were in fresh condition. At Vieille Toulouse there is archaeological evidence that the site was active until at least 75 B.C.[2] The lightest coins here fall into the bracket 2·0 to 2·25 gm., and both they and the few Bompas hoard coins illustrated are of the variety with the lozenges in the first and second (upper) quarters.

Putting together the chronology and the geography suggested by these records, it is plain that the main dolphin series are the money of the Tolosates, or perhaps of the Volcae Tectosages, incorporating them. The location of the early hoards seems to suggest that the coinage started to the north of the region, perhaps in Rouerge, and that the point of issue did not pass south, no doubt to Tolosa, until the start of the distinctive rectangular-faced coins on chopped flans.[3] It is likely that these coins were in existence throughout the period which first brought the Volcae Tectosages into Roman history. The story starts, after the defeat of Bituitus and the Arverni and Ruteni in 121 B.C., with the formation of the province of Gallia Narbonensis and the foundation of the colony of Narbo in 118 B.C. Following the final turning back of the Cimbri and Teutones in south-west Gaul in 109 B.C., the Romans undertook a campaign against the rebellious Volcae Tectosages in 108 B.C., leading to the sack of Tolosa in 106 B.C.[4] There were renewed hostilities in the area, following the revolt of Sertorius in Spain, particularly in 78–77 B.C.; in the first of these years L. Valerius Praeconinus suffered defeat amongst the Aquitani, in the second Pompey passed through the region on his way to a successful campaign in Spain. It is likely that the main group of hoards should be associated with the sack of Tolosa, while the burial of the Bompas hoard should be linked with the events of the Sertorian War. It seems abundantly established that the use, and very probably the issue, of the dolphin series continued after Roman

[1] See p. 43, n. 3.

[2] Labrousse 1960, 197–202, 1963, 24.

[3] Majurel *et al.*, 426, dispute Soutou 1966, 268, when they conclude that the coins point to an early origin in Rouerge; I tend to agree with Soutou.

[4] Strabo iv, 1, 12–13.

rule was established in the territory of the Volcae Tectosages. The coins also strongly support the views of those who maintain that the territory of this tribe did not reach to the sea at Narbo.

The second stream of *monnaies-à-la-croix* consists of those which may be described as having a negroid head [**Fig. 2. 37–48,** cf. **50–2**]. The face, with bulging eyes and protruding features, is distinctive; the hair is displayed in one to three, or even more, waves. The reverse omits the axe; instead there are usually three round globules and a circle, each within a crescent in the four angles of the cross, a pattern still recalling the petals of the original rose of Rhoda [**Fig. 2. 37–43**]. There is, however, another group of the reverses on which, in place of two of the globules, we find three joined dots or a reversed S-pattern [**Fig. 2. 44–7**]. Finally there are a few coins on which one of the three globules is replaced by a quincunx of five joined dots [**Fig. 2. 48**]. Although the reverse shows this strain to be part of the *monnaies-à-la-croix* series, there is little or no doubt that the head does not derive from the nymphs of Rhoda or Emporion, but from a different head, that of Artemis on the coins of Massalia. This is perceptible on the best and earliest examples, which show obvious traits drawn from the common drachms with a lion reverse, in particular the form of truncation.[1] Of course this resemblance rapidly passes, and the coins with negroid head pass through the same stages of disintegration and loss of weight as other Celtic coins. The proportion of plated coins is even higher than in the dolphin series. The coins are again struck on cut flans, and there are rare obols or minims of silver. The weight of the earlier examples of negroid head coins is over 3 gm., but the majority lie between 2·5 and 3 gm. There are comparatively few coins in the lowest weight category, and the impression is conveyed that the series petered out earlier than the dolphin type. (For the obols see **Fig. 5. 140**, p. 55.)

A few coins which have deviating obverses combined with reverses which link them with this strain may be ancestral to the series rather than derivative, e.g. **Fig. 2. 50–2**.[2]

Although these coins are the commonest of all *monnaies-à-la-croix*, until very recently there was no reliable evidence on which to assign them to any region. It is now clear that they belong to Volcae

[1] Cf. de la Tour VIII, 2976 with III, 819, etc. Obols corresponding to *monnaies-à-la-croix* are also, in some cases, plainly influenced by the very common obols of Massalia.

[2] e.g. *RN* 1901, iii, 17, St. Étienne-des-Landes; *RN* 1841 vi, 5, vii, 1, Île-de-Noé; *RN* 1841, vii, 10 Mirande/Condom; B.N. Paris 2975; 3015; Charles-Robert i, 17.

Arecomici, who previously have been assumed not to have issued *monnaies-à-la-croix*. The new attribution is the direct consequence of the excavations at Nages (Gard), where twelve isolated coins of negroid head type were found and no *monnaies-à-la-croix* of any other type.[1] The discovery, not long after, of the Lattes hoard, in which coins of this type predominated, prompted a review of the evidence.[2] This established not only that the Tour-Magne (Gard) hoard was of exactly similar composition to the Lattes hoard, but that an appreciable number of negroid head type coins had been found at one time or another in Gard, Hérault, and Vaucluse.[3] It is, moreover, a remarkable fact that as soon as the Hérault or Orb is crossed, negroid head type coins disappear. I noted one possible coin at Ensérune, none are recorded from Vieille Toulouse and only two from St. Jean-de-Verges.[4] They have, however, occurred in a number of the more distant hoards, Île-de-Noé, Mirande/Condom, St. Étienne-des-Landes (specially numerous), Capdenac, Cauzé, St. Sauveur, Blaye, all of which we have already encountered.[5] They were also present in the hoard from Pisanguel (Haute-Garonne) and predominated in the hoard from Trap (Tarn).[6] In the hoard at Castelnau-sur-Auvignon (Gers) what is probably this type was found with coins of the type attributed to the Aquitanian tribe of the Elusates, but there are other possibilities.[7] Thus, although the home of the negroid type is now clearly established, the coins seem to have been used widely in the Garonne basin, travelling there direct, across

[1] M. Aliger, 'Nages (Gard); des origines à la fin de l'ère antique', *Celticum* xvi (1967), 46; 'Monnaies-à-la-croix de Nages', *Ogam* xvii (1965), 235–41. Further report in *Ogam* xix (1967), 23–43. The potin coins from Nages, although they may have coexisted with the *monnaies-à-la-croix*, are not further considered here.

[2] See p. 41, n. 4.

[3] Aliger 1965, 241, mentions 2 (out of 3) from the excavations at Canteduc and one from Tour-Magne (Gard). Majurel *et al.*, 1966, 426, mention several, not from the hoard, found at Lattes and one from Rouet (Hérault). The catalogue of the Médaillier at Montpellier (Bonnet, 1896, 25) records, about nos. 393–412, that several have been found at Murviel. I have seen a parcel of three in the museum at Montpellier, certainly local finds. Blanchet records one from Barri (Vaucluse); I suspect, but cannot prove that the coins he records, 502–4, from Castelar and Cavaillon (Vaucluse) and Laudun (Gard), are of the same type. *RN* 1839, pl. VIII illustrates one from a hoard from Martigues-St. Rémy (Bouches-du-Rhône), Blanchet 545, T. 26. The hoard contained Roman republican or consular denarii, undescribed, with some Rhône Valley VOL and 'bouquetin' coins, an Avenio, a Kainiketoi, and about 15–20 *monnaies-à-la-croix*, presumably like the one illustrated. No doubt this list can be extended. There may well have been coins of this type present in many of the poorly recorded hoards.

[4] See p. 44, nn. 1–2.

[5] See p. 41, nn. 1, 3; p. 43, n. 3.

[6] Pinsaguel, Blanchet 560, T. 89; *RN* 1867, 22. Trap, Blanchet 595, T. 242.

[7] Castelnau-sur-Auvignon, Blanchet 561, T. 91. The Manciet (Gers) hoard, Blanchet 560, T. 90; *RN* 1846, 420, also combined these two types.

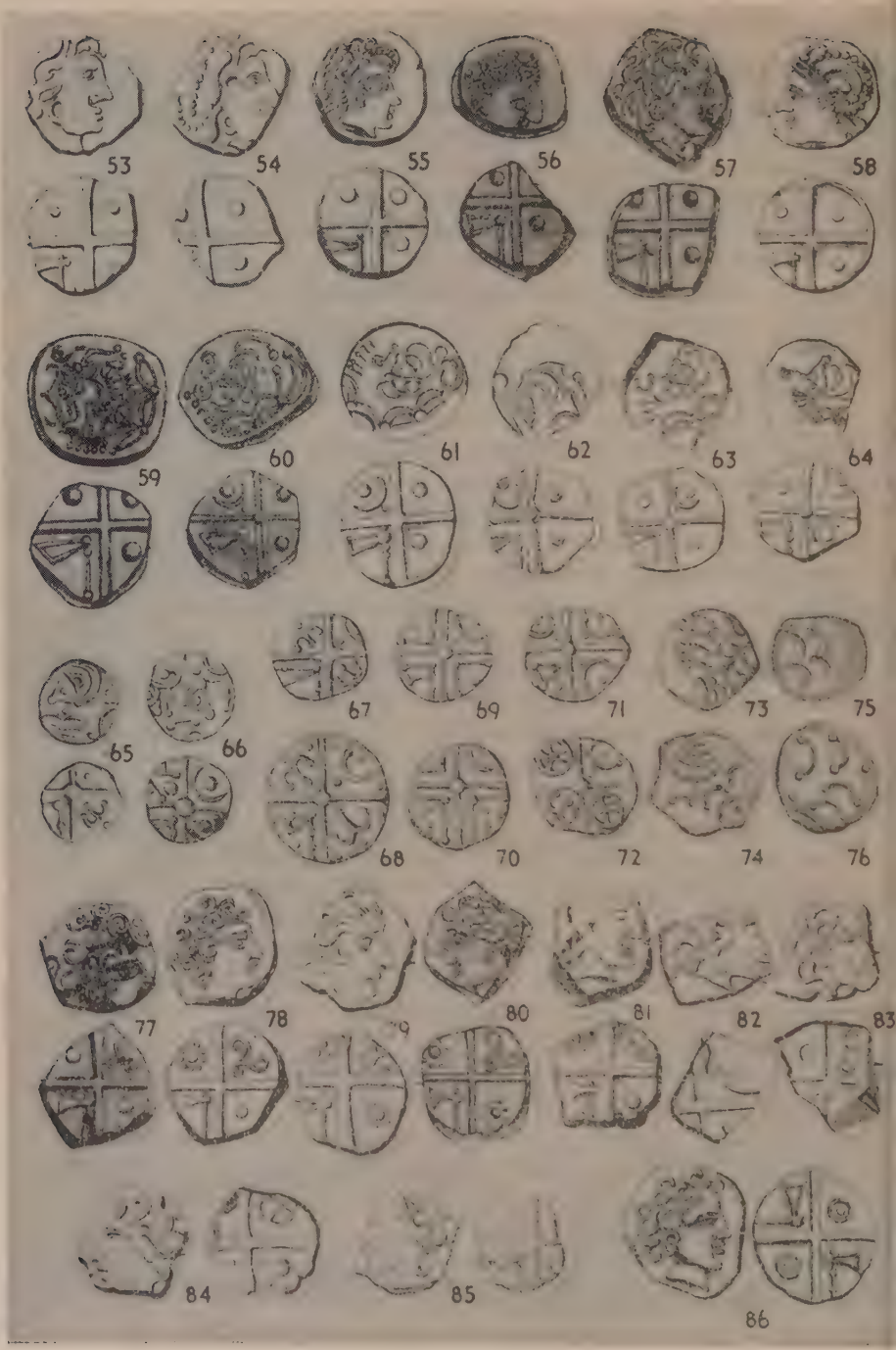
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FIG. 3.

the Col-de-Pertus, and not through the neighbouring Volcae Tectosages. The find spots are shown on p. 70, **Map 4**.

There is important evidence as to the date of this stream. Three examples were found in the excavations at Alise St. Reine, the site of the ancient Alesia.[1] It is a fact that these deposits were sealed and must be dated before the surrender of Alesia in 51 B.C. We can be sure, therefore, that coins of the negroid head type were still circulating up to nearly 50 B.C.

It is probable that some meaning should be attached to the three different types of reverse. The coins found at Nages are all of the usual type; but in the Cauzé hoard there was not one that did not have the reversed S in one quarter.[2] Amongst the apparently local finds preserved at the Museum of Montpellier there is a parcel of three, presumably found together, all of which are of the reversed-S type. Hoard evidence suggests that this is not a distinction of date. Die study would be needed to establish its significance.[3]

The third stream of *monnaies-à-la-croix* consists of coins on which the head takes a triangular form [**Fig. 3. 59–66**]. There is a fairly clear evolution of type from coins of the Béziers hoard phase [e.g. **Fig. 3. 53–8**] to those where the triangle obtrudes and finally to those where it has vanished [**Fig. 3. 67–76**]. The triangular head coins initially have weights over 3 gm.; at this stage there are a number of decorative features, not far removed from those on Béziers types. The reverse always has an axe in one quarter, like the dolphin coins, and there is usually a single pellet in each of the other quarters, occasionally two pellets in one, often accompanied by a crescent. These coins occurred in the hoards of St. Étienne-des-Landes and Capdenac (Lot).[4] Examples of triangular head coins occur, in small numbers, in nearly all the other hoards where dolphin coins occur.

Silver minims are particularly plentiful in this stream [**Fig. 5. 141–2**, p. 55]. The impression created by the coinage is that the issuers were a relatively poor people, not quite keeping up with their more prosperous neighbours.

The most important find for dating the triangular head coins is the

[1] J. B. Colbert de Beaulieu, *RNB* ci (1955), 74, no. 181.

[2] Coins in Museum of St. Raymond, Toulouse; Labrousse 1963, 20–2.

[3] There are silver and bronze coins in the name of the Volcae Arecomici as well as silver and bronze coins with the name of Nemausus or the Namasates, de la Tour, 2646, 2657, 2677, 2698, 2709, 2718, 2725, and 2735. The relationship of these coins is not well understood, but this requires a separate study and is not considered here.

[4] See p. 41, nn. 1, 3.

hoard from Cuzance (Lot) [**Fig. 3. 65–76**]. The weight of coins in this hoard has been reduced to no more than 1·3 gm.[1] The coins fall into three groups. On the first, the triangular head, descended from the type of those found at St. Étienne-des-Landes, is visible. The reverses of some of these small coins have borrowed the M of the legend from the reverse of obols of Massalia and made a pattern of it. The second group have completely unintelligible obverses, but a cross on the reverse; the axe survives in one quarter and a symbol derived from the M of Massalia sometimes appears in another. Finally the coins become completely barbarous, with meaningless branch ornaments on either side. An example of the second Cuzance type was found in the dated deposits at Alesia.[2] It is, thus, contemporary in use with the latest of the negroid head types, also found in the same deposits; both were clearly in use some time before 51 B.C., a slightly later date than we have for the dolphin type.

In addition to the three hoards mentioned so far, examples of triangular-head coins have been found in the hoards from Cauzé Pinsaguel, St. Sauveur, Blaye, and Pammiers.[3] A single example has been found at Montauban, (Tarn-et-Garonne).[4] Excavations at Luzech, so far unpublished, have produced two regular triangular-head coins, four with unintelligible obverse, and one with the barbarous branch pattern.[5] Four examples of Capdenac type and one of the earliest Cuzance type are recorded from Vieille Toulouse.[6] I have noted four or five, with three obols, at Ensérune. It has long been assumed, and I think all the evidence tends to confirm, that the triangular-head coins should be ascribed to the Cadurci. Their story is clearly a long one, and there are many steps missing in the record, but both hoards and casual finds so far support this attribution. The presence of triangular-head coins at Vieille Toulouse, when taken with the absence of negroid-head coins, clearly has some significance, and the proximity of the Cadurci to the Tolosates provides the link.

[1] Cuzance, Blanchet 574, T. 141, see also 96; *RN* 1867, 26; *RBN* 1879, 248. There are identifiable examples in many museums, and in particular 40 in the Museum of Montpellier, nos. 739–78.

[2] Colbert de Beauleau 1955, 74, no. 182.

[3] See p. 43, n. 3, and p. 33, n. 1.

[4] *RN* 1839, viii, 6; Charles-Robert, ii. 17–18.

[5] Information regarding excavations by R. Tardieu, kindly provided by M. Labrousse. See also p. 44, n. 8, and p. 58, n. 4, for other coins found in the excavations. The excavations also provided an example of Blanchet, fig. 163, de la Tour 4365, a silver minim perhaps of the Cadurci, not considered here, although one of the few types which coexisted with *monnaies-à-la-croix*.

[6] See p. 44, n. 1.

It may be remarked that the Capdenac hoard was found close to the presumed site of the Cadurcan capital of Uxellodunum. The distribution of coins with triangular head is shown on p. 71, **Map 5**.

Some confirmation of this attribution may be found in the fact that there are regular silver and bronze coins, all very scarce, of the Cadurcan ruler mentioned by Caesar, Lucterios. In 52 B.C. he was leading an invasion into the neighbouring tribe of the Ruteni.[1] He appears to have survived the war. While the silver coin shows, as it were, a reference back to the reverse of the *monnaies-à-la-croix*, and particularly to the reverse appropriate to the triangular heads, the association with the Cuzance type might be thought thin had not two examples been found actually in the Cuzance hoard.[2]

The fourth main stream of *monnaies-à-la-croix* is more complex and less tangible. There are a large number of coins, of many different varieties, which have elaborate hair styles and highly developed ornaments in the angles on the reverse [**Fig. 3. 77–IV. 101**]. The coins are well, sometimes beautifully, designed, though again the effect often suffers because they are struck on the same chopped flans as other *monnaies-à-la-croix*. Some heads have wild locks, others beards or traces of helmet; they face left or right indifferently. Several have prominent torques. The reverses are equally varied; the quarters contain a large range of symbols, wheels, whorls, pseudo-legends, what may be fruit and other objects impossible to interpret. There is nearly always an axe in one quarter, as on the dolphin and triangular-head coins. There is no doubt that the coins could be broken down into smaller groupings, and it is probable that the relationship between these could be established. Obols are rare but exist, e.g. p. 55, **Fig. 5. 143–4**.

Coins of this strain are present in hoards as early as those from Île-de-Noé and between Condom and Mirande (Gers) both of which have coins weighing over 3 gm.[3] Although there are no hoards recorded in which they predominate,[4] they are present to some extent in most of the hoards in which dolphin coins predominate. It is likely, therefore, that, as in the case of the triangular head cross, they come from one of the areas bordering on the Tolosates. The

[1] Caesar, *BG* vii, 5, 7, 8; viii, 30, 32, 34, 35, 39, 44.

[2] J. B. Colbert de Beaulieu, *Les Monnaies gauloises au nom des chefs mentionnés dans es Commentaires de César*, Collection Latomus, lviii (1962), 437–9.

[3] See p. 41, nn. 1, 3.

[4] The only coin described from the Drudas (Haute Garonne) hoard, Blanchet 560, T. 86, is, however, of this class.

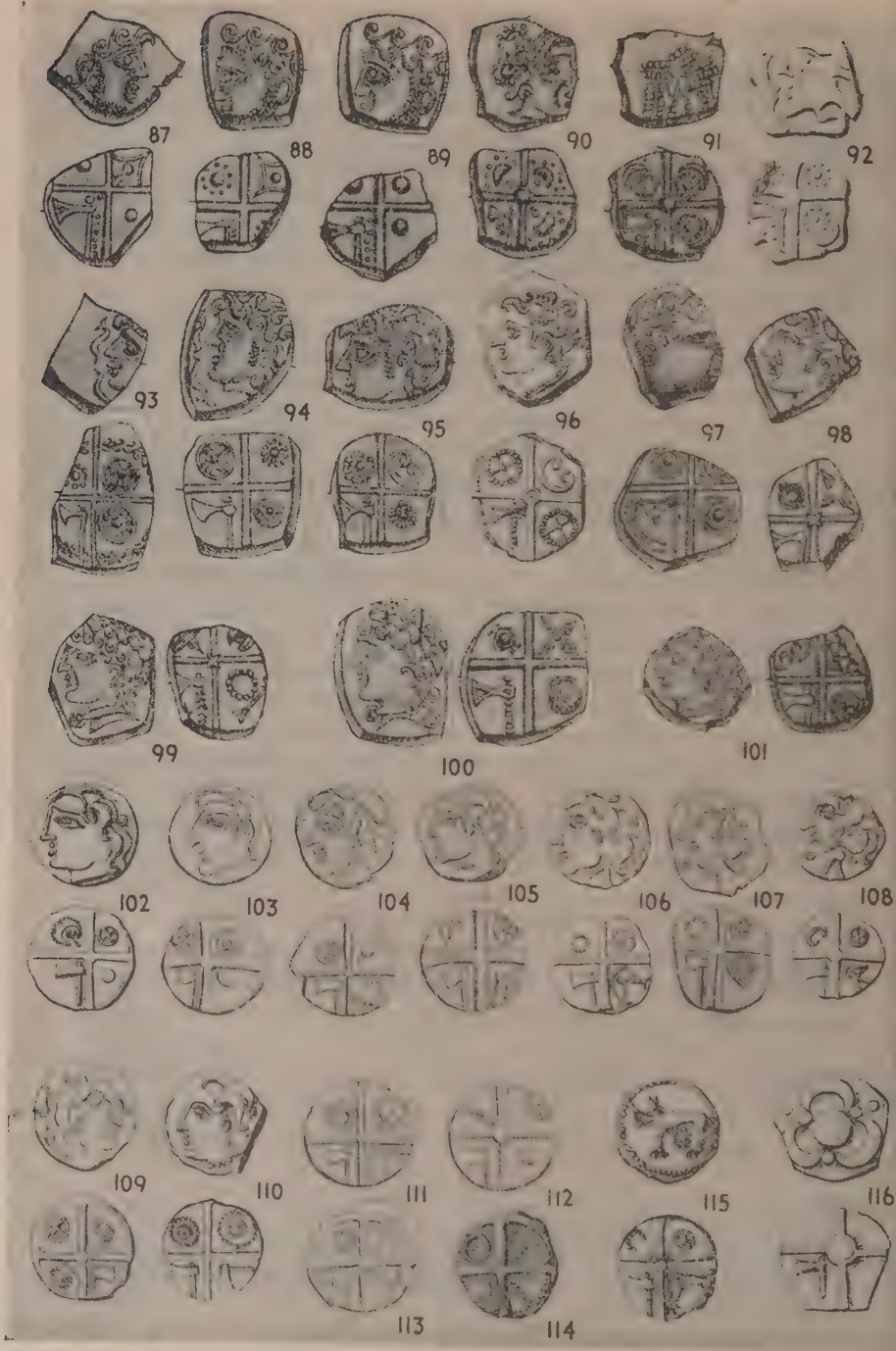
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FIG. 4.

hoards in which they play an appreciable part, such as that from St. Étienne-des-Landes and Capdenac, are relatively to the north, and, as a hypothesis but no more, the coins might be found to belong to the Nitiobroges or possibly the Petrocorii. But other hoards in which they occur in small numbers, Cauzé, Pinsaguel, and Pammiers, are widely dispersed.[1]

There is perhaps some slight evidence in favour of the Petrocorii. A hoard from Belvès (Périgord), the coins of which weigh 1·8 to 1·9 gm., is obviously late [**Fig. 4. 102–13**, cf. **115**].[2] The types seem to be derived from the pictorial types, as if they were their successors. There is evidence that a few such coins have been found at Ecornabœuf, near Périgueux, but suggestions that they are regularly found in that district lack confirmation.[3] Elsewhere, there is some reason to think that some were present in the Mèze hoard.[4] A coin of Belvès type was also in the Montargis (Loiret) hoard, with coins of Kaletedou and Lemovices types, which were circulating in the years shortly before Caesar's campaigns and a different Belvès type was in the Cuzance hoard, of similar or slightly later date.[5] This is very thin evidence on which to base an attribution for the Belvès type, let alone to make deductions about its presumed predecessor.

At the present time I do not know any reliable evidence from local find spots for the home of the predecessors, either as a group or individually. Two have been noted from Vieille Toulouse and one example is available from Ecornabœuf.[6] But I failed to find any certain examples at Ensérune. The principal blank on the map is amongst the Nitiobroges, and it is there that I should start looking. For what they are worth, the find spots of the pictorial type coins are shown on p. 71, **Map 6.**

I am, therefore, not able to make any worth-while suggestions regarding either the dating or the attribution of these attractive coins. I can only say that their course must have run in parallel with the

[1] See p. 43, n. 3; p. 33, n. 1.

[2] Belvès, Blanchet 551, T. 52; *RN* 1886, 1–15, pl. i. The Belvès hoard contained coins of a type of which a single example was found in the Cuzance hoard (**Fig. 4. 114**, cf. **113**), a fact of importance for dating. (**Fig. 5. 145** may be the corresponding obol.)

[3] Blanchet 281; five Galy coins from Ecornabœuf (nos. 111–15) are now in the Museum of Périgueux, the Mourcin coins in the Museum of St. Germain-en-Laye. The Museum of Périgueux only had one other coin of the type (no. 237).

[4] Charles-Robert, ii, 29.

[5] Montargis, J. B. Colbert de Beaulieu, *Rev. Arch de l'Est et Centre Est* X (1959), 138–41; one Belvès type coin, with two axes, associated with coins of Kaletedou, B.N. 8242, 8222, 8178; and Lemovices B.N. 4165, 4572. Cuzance, see p. 50, n. 1.

[6] Vieille Toulouse, Labrousse, 1960, A4; 1963, 35. Ecornabœuf, Périgueux no. 119.

three other streams, that the location appears to be towards the north of our area, suggesting the Nitiobroges or Petrocorii, and that the decline is likely to have been earlier than elsewhere. Until more coins are found and recorded, it is unlikely that the problems can be solved, but I am sure that they would, more than most other areas of *monnaies-à-la-croix*, amply repay die study.

The dolphin type, the negroid-head type, the triangular-head type, and the pictorial type represent the four main strains of *monnaies-à-la-croix*, and in most of the hoards considered so far all four are present in varying proportions. For instance, there are examples of all four in the Pammiers hoard, which gave rise to this paper. Nevertheless, they do not exhaust the classes of *monnaies-à-la-croix* which are found in hoards.

What I may call the fifth stream is well defined geographically, but mixed in content. To the east of the Cadurci, between the Tarn and the Agout, in the hills which divide the Mediterranean from the Garonne basin, there dwelt the tribe of the Ruteni. We know from Caesar that this tribe was divided by the frontier of the Province of Narbonensis, part living within and part without.[1] Until a relatively late date this territory apparently did not use *monnaies-à-la-croix*; coins over about 2·3 gm. are found neither singly nor in hoards. However, at some point of time an extensive coinage was introduced, which is now known mainly from a series of similar hoards, all the coins of which weigh between 2·15 and 2·3 gm. The principal hoards are from Mèze (Hérault), Lodève (Hérault), La Crousatié (Tarn), Castres (Tarn), Paulhe (Tarn), Goutrens (Aveyron), and perhaps also La Fajolle (Hérault).[2]

The basic content of all these hoards consists of two types of coin. The first are *monnaies-à-la-croix* of a type distinct from any so far considered [**Fig. 5. 121–2**]. On the obverse there is a head with locks reduced to two pairs of parallel reversed Ss, though the striking leaves little intelligible to be seen. On the reverse there are in the quarters an axe, what is usually but dubiously called a torque, and

[1] Caesar, *BG* vii, 7; cf. i, 45.

[2] Mèze, Blanchet 563, T. 98; Charles-Robert ii, 29; B.N. Paris 343 f., 3 3460–3516, etc.; 124 coins identifiable in Médailler of Montpellier (more than are indicated in the 1896 catalogue). Lodève, Blanchet 563, T. 99. La Crousatié, Labrouse 1963, 30, cf. Soutou 1965, 76; *Revue de Tarn* iii (1881–1), pl. 2, 4. Castres, Blanchet 595, T. 243; *RN* 1867, 14: B.N. Paris 3433 f., etc.; Médailler of Montpellier nos. 686–92, 704. Paulhe, Labrousse, *Revue de Tarn* 3. 15 (1959), 207–20; Labrousse 1963, 30–2. Goutrens, Blanchet 543, T. 19; B.N. Paris 3440, 3478, 3481. La Fajolle, Blanchet 564, T. 98 *bis*; Médailler of Montpellier, no. 664, pl. i.

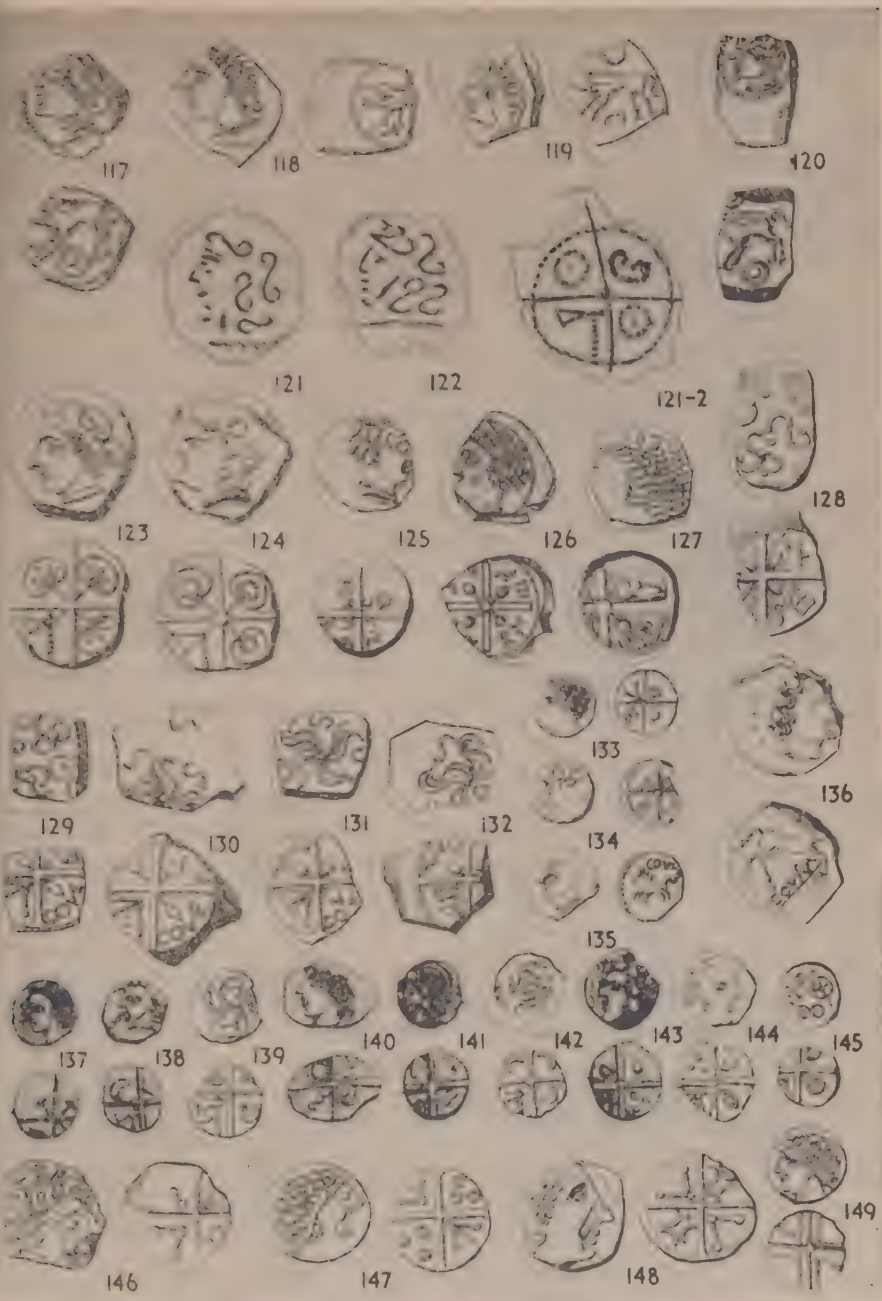
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FIG. 5.

two dotted circles.[1] The type has a possible ancestry in some of the pictorial types (cf. **Fig. 4. 96**), but this is far from clear. The second type of coin in these hoards is not a *monnaie-à-la-croix*, though struck on similar chopped flans [**Fig. 4. 117–20**]. There is a crude head on the obverse and very distinct boar on the reverse, perhaps owing something to the boar on the silver (and bronze) coins of Avenio (Avignon).[2] Both types, though very common today as a result of the hoards, were struck from very few dies and it is unlikely that either was long in circulation. These hoards also contain other minor constituents. There is a form of *monnaie-à-la-croix* with an axe and three 'fans' in the quarters on the reverse which was present at least in the Paulhe and Mèze hoards [**Fig. 5. 123–4**]. The same two hoards at least also contained a stratum of dolphin coins. (The La Fajolle hoard contained a coin with Latin inscription, and it is possible that it should be bracketed rather with the Cauzé hoard, which also contained coins with Latin inscriptions.) The Goutrens hoard also contained some coins of the Lemovices (B.N. 4892, 4417, 4097, 4108).

Isolated find spots for coins of these types are scarce. I have come across no find spots of coins with the boar reverse except in hoards. Those with the fan reverse have, I believe, been found at Vieille Toulouse and Ensérune only.[3] The torque type has been found at these two places and at Ecornabœuf.[4] The likelihood is that these coins were in issue only for a relatively short time and that they did not achieve the dispersion of most *monnaies-à-la-croix*. Indeed, it looks very much as if at least the unusual boar type, linked with the others not only by its presence in the hoards but by the tricks of manufacture, may have been an emergency issue. Taking into account the

[1] Curiously this common type has not been reproduced in the standard works. A reconstruction of both obverse and reverse has been published by J. B. Colbert de Beaulieu, *Ogam* vi (1954), 126–30, pl. v. 3–5 (two obverse dies, one reverse die) from a full pattern of the dies, reassembled in lead from several specimens. These interesting reconstructions are now in the Museum of St. Raymond, Toulouse; one obverse is illustrated enlarged in the *Catalogue of the Exhibition at the Hôtel de la Monnaie, Paris*, 1965, on the occasion of the centenary of the French Numismatic Society, 270, no. 51, 275 (wrongly called no. 88).

[2] One may also compare the coins with the legend *Sequanoiotuos*, de la Tour 5351, Blanchet, fig. 419, which also have a boar, perhaps ultimately derived from the coins of Avenio. But the *Sequanoiotuos* coins are the standard weight of a silver coin in Gaul shortly before the Roman conquest, 1·80–1·90 gm., whereas the Goutrens type, like the Avenio coins themselves, weighs between 2·2 and 2·3 gm. This is the weight of silver coins of the Arverni, a tribe with whom the Ruteni had bonds, Caesar, *BG* i. 45. For a boar obverse, see also Charles Robert iii, 4, de la Tour 3533, which belongs to the Périgueux/Belvès series, see p. 53, n. 2 and **Fig. 4. 115**.

[3] Vieille Toulouse, Labrousse 1963, 32, no. 107. Ensérune, 1930–17.

[4] Vieille Toulouse, Labrousse, 1960, 177–217, A5, two plated examples. Ensérune, 1930–16. Ecornabœuf, Museum of Périgueux no. 116.

weight, as compared with other *monnaies-à-la-croix*, the frequency of the hoards, the relatively confined area in which they have been found and the intimate die linking, there is a strong probability that they should be associated with the Roman campaigns I have mentioned in 78–77 B.C. It is possible, but less probable, that they should be connected with Lucterios' activities amongst the Ruteni in 52 B.C. If the different elements in the hoards represent different sectors of the Ruteni, we have absolutely no means at present of knowing which they were. The find spots of these coins are shown on p. 72, **Map 7.**

We may pass next to the few *monnaies-à-la-croix* which bear inscriptions. There is at present insufficient evidence to suggest who made them or where. There are two groups. The first consists of coins with legends in Celtiberian characters, read as *Untikia* and *Akerekonton* [**Fig. 5. 125–7**].[1] The only authentic find spot of *Untikia* is an isolated coin from Albi (Tarn). *Akerekonton* has been found in the hoards at Lattes, St. Étienne-des-Landes, and probably Martiel (Aveyron).[2] The coins weigh in the range 3·4 to 3·5 gm., with the exception of the two from Blaye and a stray from Vieille Toulouse, which weigh nearer 2·6 gm.; the latter have been considered a separate issue, but I doubt it. These find spots are spread right across the map and do not suggest any point of origin. The largest find (four die-linked coins from Lattes) lies well to the north-east of the area in which graffiti prove the Celtiberian alphabet to have been in use.[3] The second group consists of coins with legends in Latin characters, including *Setubal* and *Covertomotul* [**Fig. 5. 128–32**]; there seem to be others, as yet incomplete. A *Setubal* occurred in the La Fajolle hoard; *Covertomotul* coins have been found stray at Vieille Toulouse, but are not yet known from any hoard. Since the coins weigh under 3 gm. and sometimes under 2, they must be relatively late and are not to be expected in the main hoards.[4] Indeed, there are obols linked by their legend with the *Covertomotul monnaies-à-la-croix*, which are

[1] A. Soutou, *Ogam* xv (1963), 324–5; *Revue d'Études Ligures*, 1962 (1965), 251 f. Majurel *et al.*, 1967, 424. I do not think *Untikia* and the Iberian legend *Untikesken* can be brought together. The usual reading *Kerekontona* breaks the legend in an impossible place.

[2] See p. 41, nn. 1, 2, 4 for hoards. Albi, Soutou 1965, 75, n. 47.

[3] J. Jannoray, *Ensérune, Contribution à l'étude des civilisations pré-romaines de la Gaule Méridionale*, 1955, 422; M. Aliger, *Celticum* xvi, 57–8.

[4] *Setubal*, Médailler of Montpellier no. 664, pl. i. *Covertomotul*, Labrousse 1963, 36. They are certainly not coins of the Conveni; no *monnaies-à-la-croix* or associated Gaulish coins are in the Museum of St. Bernard-des-Comminges, though by contrast many bronze coins of Nîmes and some of Jaca, one each of Neroncen and Emporion and one denarius of Osca.

of a kind to be expected only in the first century B.C. **[Fig. 5. 133–5]**.[1] Finally one should mention the series of head/horse coins, intrusive into the area of the *monnaies-à-la-croix*, which bear the legends *Covra Anteios* **[Fig. 5. 136]**.[2] These occurred in some numbers in the Cauzé hoard and a single specimen is recorded at Vieille Toulouse; they are otherwise unknown. They weigh 2·85–2·95 gm. The find spots of inscribed *monnaies-à-la-croix* are shown on p. 72, **Map 8**.

There are, of course, many scarce varieties of *monnaies-à-la-croix* which do not fit tidily into the categories I have outlined (e.g. **Fig. 4. 116**), but the vast majority conform. We have now encountered *monnaies-à-la-croix* amongst the Tolosates or Volcae Tectosages, Volcae Arecomici, Cadurci, Ruteni, and either Nitiobioges or Petrocorii. We have also observed the development of the coinage, no doubt in a series of steps rather than as a continuing process, from the late third-century B.C. down to about 50 B.C., a period of nearly 200 years. An account of this kind can become confusing if it is not somewhere brought together. I have, therefore, tried to produce a table, p. 68, Appendix B, which picks out from the story the key factors, especially for dating, and relates them, period by period, to coins of differing weights and types. The poverty of many of the surviving records of the hoards, which I have here had to interpret to the best of my ability, makes it impossible to present the material on the statistical model which would otherwise have been desirable. I hope that this layout, which probably oversimplifies the complex pattern of the coinage, will nevertheless provide an intelligible structure against which to visualize individual finds.

Finally, I should refer to two omissions from this record. The first is the round silver coins found in hoards from Gers which have a traceable descent from the silver drachms of Emporion with a flying Victory over the horse on the reverse.[3] They are best known from the hoards of Laujuzon and Manciet, to which should be added the hoard, already mentioned, from Castelnau-sur-Auvignon (all in Gers).[4] The two latter hoards also contained *monnaies-à-la-croix*,

[1] Charles-Robert iii, 16–17 are based on obols of Massalia with the wheel reverse; given the overwhelming frequency of the latter in the south of France, it is surprising that there were not more copies, see p. 60, n. 5.

[2] Labrousse 1963, 149; *Cat. Hôtel de la Monnaie*, 1965, 275–6, no. 87. For fullest legend see B.N. Paris 10355–4. Intrusive in style, but like *monnaies-à-la-croix*, struck on cut flans.

[3] Gil Farres 122, third century B.C.

[4] Laujuzon, Blanchet 561, T. 93. Manciet, Blanchet 560, T. 90. Castelnau-sur-Auvignon, Blanchet 561, T. 91. Individual find spots: Lectoure, Blanchet 286, n. 2;

but the only particulars we have are that the few Castelnau coins inspected weighed about 2·7 gm., that is the bottom of the normal range of the Gers coins, 2·7–3·0 gm. With these weights it looks as if the hoards might be contemporary with those I have linked with the fall of Tolosa. The Gers coins are normally attributed, on the basis of the find spots, to the tribe of the Elusates, with their oppidum at Eauze.[1] But the distinctive obverse of the silver coins is reproduced on very base silver and bronze coins, with a wolf reverse, which bear the name of a chieftain mentioned by Caesar as the king of the Sotiates in 56 B.C., Aduetanus; the coins also give the king's and the tribal name.[2] I think, therefore, that it may be right to attribute the series to the Sotiates, whose oppidum was at Sos. At a later date the Sotiates occupied the northern part of the Civitas Elusatium, but Caesar appears to treat the Elusates and Sotiates as distinct tribes.[3] The Gers coins, of an entirely different tradition from the *monnaies-à-la-croix*, both in type and in manner of fabrication, indicate the point of contact between the money-using tribes of Gaul proper and the generally moneyless tribes of Aquitania.[4] Although their story is in many ways parallel with the *monnaies-à-la-croix*, they fall outside the limits of this study.

The second omission is one which may cause some controversy. I have not included the coins with cross reverses which are found in south Germany, Switzerland, and Austria, and, in different forms, elsewhere in Austria and Czechoslovakia. The theory has gained wide credence that the progress of the Volcae Tectosages across the map of Europe can be traced by the presence of coins derived from *monnaies-à-la-croix*.[5] In addition to their home on the Mediterranean coast, the Volcae Tectosages are attested by Caesar as having seized the most fertile area of Germany in the neighbourhood of the Hercynian Forest and still remaining there in his time.[6] There is other

Luzech, excavations by R. Tardieux, see p. 50, n. 5. In addition, the British Museum has two coins from the Sir John Evans collection, which he marked as having been found at St. Omer, Pas-de-Calais, in 1849. If true, this is of considerable interest; but the Manciet hoard was dispersed only a year or two before, and I do not trust the record. The coins are worn, 2·66, 3·02 gm. No find spots of the fractions recorded.

[1] e.g. Fabre 148.

[2] Colbert de Beaulieu 1962, 425–7.

[3] Rice Holmes 474–7, cf. 422. Caesar, *BG* iiii 20, 21; cf. 27.

[4] The Tarbelli appear to have used coins marked only with protuberances, die struck none the less; Blanchet 286, 571, T. 131–2, hoards at Eyres-Moncube and Pomarez (Landes).

[5] *RN* 1859, 318; Blanchet 472, n. 1; Forrer 68–73. K. Pink, *Einführung in die Keltische Münzkunde*, 1960, 27, 45, etc.; K. Castelin, *Die Goldpragung der Kelten in den Böhmischen Länden*, 1965, 162–4, 173, 224, etc.

[6] Caesar, *BG* vi, 24.

evidence for the Tectosages in Germany.[1] Although exact identification of their territory presents great difficulties, and has been the subject of much argument, Caesar's intention must have been to refer to somewhere in the direction of Bohemia. It is well known, moreover, that the Tectosages—the Volcae are not mentioned—passed down the Danube route about 280 B.C. into Asia Minor, under the command of Brennus, to form the biblical Galatia. The tribal units partaking in this adventure were called the Tolistoboii, Trocmi, and Tectosages.[2] There is also the story, of doubtful credentials, that the *aurum Tolosatum*, taken as booty by the Romans in 106 B.C., had originated in Gaulish spoils from Delphi.[3] Although too much cannot be read into the connection between different areas employing the same Celtic names—several tribal names are repeated in areas which do not appear to have any other connection—it would obviously be attractive if some numismatic bond could be established between those different areas where the Tectosages or Tolosates are known to have been.

The coins which have given rise to this theory are round pieces, with a head facing right and a cross reverse with one of two or three arrangements of symbols in the angles [**Fig. 5. 146–8**]. It might be possible to argue that the V- or ↓-shaped ornaments in one or two angles on the reverse of these coins reflected a recollection of the axe on *monnaies-à-la-croix*. No other features of the portrait or the reverses, which often have three rings in opposite quarters, can be so claimed.[4] Moreover, the weight, 1·8 gm., is the standard weight for silver pieces of Gaul and Germany of Caesar's time; the weight standard is no more derived from *monnaies-à-la-croix* than is the technique of manufacture or the details of the design. All that there is in common is the cross pattern itself, for which an alternative explanation is equally plausible. The common obols of Massalia with the wheel reverse have, as we have already seen, exercised their influence on the number of coins, including the obols of the *monnaies-à-la-croix* series.[5]

[1] Charles-Robert 461, nn. 2, 4.

[2] The names appear on later coins of Galatia, B. V. Head, *Historia Nummorum*, 1887, 629–31.

[3] Strabo iv, 1, 12–13; Posidonius, quoting Timagenus.

[4] The B.N. Paris coins may be grouped as follows: Reverses with I, V, ⁖, and another symbol, nos. 9280–2, 9288. Reverses with V or ⋎ opposed and three circles opposed, nos. 9283–7, 9292; also 9289, but with head to left. Reverse with V opposed and three crescents opposed, no. 9293. None of these have, as has sometimes been supposed, a legend VOLC.

[5] See p. 58, n. 1. The obol of Massalia was sometimes directly copied, e.g. by the Volcae Arecomici, de la Tour 2646, or in Languedoc, de la Tour pl. X. T, U, or on the

They, rather than *monnaies-à-la-croix*, must be the origin of the small silver coins well known from the Eis and Gurina hoards, as well as from the finds at Stradonitz (e.g. **Fig. 5. 149**).[1] Indeed, the devices in the angles of the reverse cross on the silver pieces of south Germany are as readily derived from corruptions of the MA of Massalia as they are from the symbols of the *monnaies-à-la-croix*. In date the coins are late for derivation from *monnaies-à-la-croix*; the hoard from Lauterach (Vorarlberg), must be placed, from the Roman coins in it well into the first quarter of the first century B.C.[2]

The conclusion from all this must be that the theory of migration of *monnaies-à-la-croix* across France in the wake of the Volcae Tectosages into Germany, or the adoption out of piety in Germany of the types characteristic of Mediterranean homelands, must be abandoned; it is not intrinsically likely and is not supported by any trial of connecting evidence across the map of France. The evidence is rather the other way round, that the Volcae entered France relatively late from the central Danube. It is for these reasons that I have excluded the German *monnaies-à-la-croix* from this summary. They seem to me to fit far more smoothly into the pattern of German Celtic coinage if this connection can, with all regret, be forgotten.

In the form in which I have completed it this paper has run wide of the Presidential Address from which it is derived. Nevertheless, I think it will be more useful published with full supporting evidence even if indigestible, than in the form in which I gave it. I must conclude by thanking those many scholars, curators, and writers who, wittingly or unwittingly, have helped me to arrive at these conclusions.[3]

Rhône, de la Tour 5780, or in unknown areas, de la Tour 2172–3. A type, probably local to Narbonne, has a stylized bucranium added to the reverse, Hill 31, pl. vi. 1–2; these may be compared with obols of Ilerda, having both MA and an Iberian inscription, B.N. Paris 539, etc., *Cat. Montpellier* 7, no. 69. Coins influenced by the obol of Massalia include obols with triangular head from the Cuzance (Lot) hoard, see p. 50, n. 1.

[1] Pink 1960, 50, for Eis and Gurina.

[2] Elmar Vonbank, 'Ur- und frühgeschichtliche Zeugen aus der Landschaft um Lustenau', *Lustenauer Heimatsbuch* i (1965), 38–40, pl. 13.

[3] Mr. Michael Herzfeld, Miss Marion Archibald (British Museum), M. J. B. Colbert de Beaulieu, Mlle M. Mainjonet (Bibliothèque Nationale), Professor S. S. Frere, Mr. A. L. F. Rivert, M. V. Lassalle (Nîmes), M. M. Aliger (Nages), M. M. Temple (Montpellier), Abbé J. Giry (Ensérune), M. C. Viguier (Narbonne), M. M. Labrousse (Toulouse), M. A. Jerebzoff (Agen), M. Soubeyron (Périgueux), M. J.-C. Richard (Montpellier).

POSTSCRIPT

This paper was completed before Mr. Michael Crawford's important new book on *Roman Republican Coin Hoards* was available. He now gives reasons for dating the Roman coins in the two key Spanish hoards, from Drieves and Valera, to the period 211–208 B.C., that is, to the middle of the Second Punic War, instead of to the hitherto accepted date, which I had used, namely 160–150 B.C. If Mr. Crawford's proposed dating wins acceptance, as I expect it will, this has consequences for the absolute, though not for the relative, dating of *monnaies-à-la-croix*.

The Béziers hoard would have to be placed towards the end of the third century B.C., possibly at the time of Hannibal's passage through south France in 217 B.C. It would follow that all the hoards containing coins which weigh over 4 gm. should be placed even earlier in that century, as would also, on the evidence of the overstrike, the Bridiers hoard. None of this is intrinsically improbable, but there has not up to now been any evidence on which to base such early dates for Gaulish coins.

Another consequence would be that the interval available between the Spanish hoards and those which we still need to associate with the fall of Tolosa in 106 B.C. would allow ample time for the hoards with coins in the bracket 3·15–3·50 gm., and the multiple develop-developments of *monnaies-à-la-croix* in that phase. But between the Second Punic War and the Roman campaigns against the Arverni in the 120s we lack knowledge of any historical events of the kind likely to have given rise to hoarding.

While I have let the dates I used stand in the text, I thought it would be useful to indicate here the kind of changes the new dating would necessitate.

APPENDIX A

HOARDS OF *MONNAIES-À-LA-CROIX*

(Bl. T. = Blanchet's list of hoards. N = note in this article.
D = Dolphin type; N = Negroid type; T = Triangular head type;
P = Pictorial type; R = Tarn/Hérault (Ruteni) type)

The hoards briefly summarized below are those marked on **Map 1** (p. 69).

Imitations of Rhoda Drachms

1.	Uzech-les-Oules, Gourdon, Lot, 1880. c. 30+ coins in pot. 4·55–4·75 gm.	Bl. T. 142 N. (p. 35, n. 2)

First Hoards of Monnaies-à-la-croix

2.	St. Capraise, Bergerac, Dordogne, before 1910. Probably 600–700 coins (2·350 kilos). 3·75 gm., with others worn and heavier.	Bl. T. 56 N. (p. 39, n. 1)
3.	Lestrade, Mouleydier, Dordogne, 1867. 600–700 coins ('the rose well formed'), with Poitou silver.	Bl. T. 55 N. (p. 39, n. 1)
4.	Rouquette, Eymet, Dordogne, 1879. c. 600 coins with 5 or 6 gold staters.	Bl. T. 54 N. (p. 39, n. 2)
5.	Béziers, Hérault, 1871 750–800 coins in pots. Some 4·60–4·70 gm., the balance 3·50–3·65 gm.	Bl. T. 100 N. (p. 39, n. 4)

Spanish Hoards Containing Monnaies-à-la-croix

6.	Valera, Cuenca, Spain **[Fig. VI. 1–6]** 6 coins in basically Roman and Iberian hoard	— NN. (p. 40, nn. 1–2)
7.	Drieves Guadalajara, Spain **[Fig. VI. 7–8]** 2 coins in basically Roman hoard.	— N. (p. 40, n. 4)

First Main Wave of Hoards of Monnaies-à-la-croix

8.	La Loubière, Maleville, Aveyron, 1881, 1963. Found in two parts; only 18 coins described. 7 Béziers types, 11 early developments. 3·35–3·6 gm.	Bl. T. 22, 22 *bis*. N. (p. 41, n. 1)
9.	Île-de-Noé, Mirande, Gers, before 1841. 35+ coins in pot. Early versions of D, N, T, and P. 3·30–3·40 gm.	Bl. T. 94 N. (p. 41, n. 1)
10.	Mirande/Condom, Gers, before 1841. Similar in character to Île-de-Noé. 3·30–3·40 gm.	Bl. T. 92 N. (p. 41, n. 1)
11.	St. Étienne-des-Landes, Sarlat, Dordogne, 1899. c. 1,500 coins in pot, of which D 410, 3·32 gm., N 508, 3·35 gm., T 183, 3·35 gm., and P 390, 3·30 gm.	Bl. T. 53 N. (p. 41, n. 1)
12.	Martiel, Villefranche-de-Rouerge, Aveyron, before 1874. c. 6,000, 45 varieties, including Akerekonton. Probably similar to St. Étienne.	Bl. T. 20 N. (p. 41, n. 2)
13.	La Gasse, Villefranche-de-Rouerge, Aveyron, 1861. 100+ in pot. Partly different types from Martiel.	Bl. T. 21 N. (p. 42, n. 2)

14. Boé, Agen, Lot-et-Garonne, 1862. Bl. T. 144
300–400 coins in pot (3–4 kilos). 'Axes'; description would fit La Loubierè or St. Étienne types. N. (p. 41, n. 2)
15. Capdenac, Figeac, Lot, 1866. T. 141 (96?)
534+ coins, probably many more, of which D 89, 3·20 gm., N 23, 3·20 gm., T 40, 3·25 gm., P 83, 3·15 gm. N. (p. 41, n. 3)

FIG. 6. *Monnaies-à-la-croix* from Spanish hoards: 1–6 Valera hoard, 7–8 Drieves hoard.

Lighter Hoards—Dolphin Type Predominates

16. Cauzé, Beaumont-de-Lomagne, Tarn-et-Garonne, 1899. Bl. T. 244
714 coins, of which D 316+39 double axes, N 283, T 21, including Cuzance branch varieties, P 16, 4 Latin legends with 17 Anteios. 2·15–2·90–3·28 gm. N. (p. 43, n. 3)
17. St. Sauveur, Panillac, Gironde, 1866. Bl. T. 96
c. 3,500 coins (11 ounces). Of 173 examined, D 135, N 13, T 16. Av. 2·67 gm. but up to 3.12 gm. N. (p. 43, n. 3)

FIG. 7.

18. Blaye, Gironde, before 1867. Bl. T. 97
Contained pieces of good style, including N and T;
2 Akerekonton, 2·65 and 2·61 gm. Presumably as St.
Sauveur. — N. (p. 43, n.3)

19. Pinsaguel, Muret, Haute Garonne, before 1866. Bl. T. 89
c. 119 coins, of which D 94+1 double axe, 2·50–3·0 gm., N 10, 2·50–3·0 gm., T 4, 3·0 gm., P 3, 2·50–3·0 gm. N. (p. 43, n. 3)
20. Anjoulets, Beaumont-sur-Lèze, Haute Garonne, 1866. Bl. T. 88
In pot, only presence of T recorded. N. (p. 43, n. 3)
21. Pammiers, Ariège, before 1960. [**Fig. VII. 1–17**] —
Presumed hoard of 17 coins. D 11, 2·07–3·01 gm.; N 3, 2·56–2·90 gm., T 2, 2·80–2·82 gm., D 1, 2·62 gm. N. (p. 43, n. 3)
22. Bompas, Pyrenées Orientales, 1910. —
600 in hoard of Roman denarii buried c. 80 B.C. with some *monnaies-à-la-croix*; coins inspected were D, 2·40–2·75 gm. N. (p. 43, n. 3)

Lightest Hoards—Dolphin-Type Predominates

23. Luzech, Cahors, Lot, 1880. Bl. T. 140
Several hundreds in scattered hoard. Only two recorded are D, 2·62, 1·88 gm. N. (p. 43, n. 4)

Hoards as D, but Negroid Head Predominates

24. Lattes, Hérault, 1967. —
756 coins in pot of which T. 168, 3·15–3·40 gm.; N 430, including 2 plates, 3·2–3·55 gm.; 4 Akerekonton 3·3–3·42 gm. N. (p. 41, n. 4)
25. Tour-Magne, Nîmes, Gard, before 1840. Bl. T. 83
No details except that it contained T and N. N. (p. 41, n. 4)
26. Martigues—St. Remy, Bouches-du-Rhône, 1834. T. 26
500–600+ coins, mainly Massalia, with Roman 'consular', Avenio, etc., but including 15–20 *monnaies-à-la-croix*, N alone illustrated. N. (p. 47, n. 3)
27. Trap, Garric, Albi, Tarn, c. 1850. T. 242
No details, except that it contained N. N. (p. 47, n. 6)

Late Hoard—Triangular Head Predominates

28. Cuzance, Cressendac/Martel, Lot, 1878. T. 143
4,000 coins in pot, 960 studied, all T and variants, except one of Belvès type. Also contained 2 silver Lucterios. 1·28–1·30 gm. N. (p. 50, n. 1)

Late Hoard—Pictorial Type Predominates

29. Belvès, Sarlat, Dordogne, 1815. T. 52
4½ marks in pot, 60 inspected of which all developments of P, 1·80–1·90 gm. N. (p. 53, n. 2)
30. Montargis, Loiret, 1899. —
Small hoard of 5 Kaletedou, 2 Lemovices with 1 Belvès type. N. (p. 53, n. 5)

Tarn/Hérault Hoards—Mixed Contents

31. Mèze, Montpellier, Hérault, 1847. Bl. T. 98
At least 120, probably many more, R, 2·0–2·28 gm. also included a P (Belvès type) 1·83 gm. N. (p. 54, n. 2)
32. Lodève, Hérault, before 1845. Bl. T. 99
No details but resembled Goutrens. N. (p. 54, n. 2)
33. La Crousatié, Castelnau-de-Lévis, Tarn, before 1963. —
No details, but resembled Goutrens. N. (p. 54, n. 2)
34. Castres, Tarn, 1843 Bl. T. 243
c. 800 coins. Same types as Goutrens. N. (p. 54, n. 2)
35. Paulhe, Montredon-Labessonié, Tarn, 1956. —
Many in pot; of 13 inspected, T 2, 2·28 gm.; R 11, 2·12–2·31 gm. N. (p. 54, n. 2)
36. Goutrens, Rodez, Aveyron, 1867. Bl. T. 19
c. 1,500 coins, with 4 kilos of silver ingots (in Rodez). Almost all R, but one Lemovices. 2·15–2·25 gm. N. (p. 54, n. 2)
37. La Fajolle, St. Pons, Hérault, 1835. Bl. T. 98 *bis*
c. 1,000 coins, with fibula and chain. Av. 2·50 gm. Same types as Mèze, presumably R, but contained a setubal also. N. (p. 54, n. 2)

Hoards Mixed with Elusates/Sotiates Coins

38. Manciet, Condom, Gers, 1846 Bl. T. 90
1,500+ Elusates/Sotiates with some *monnaies-à-la-croix* N. (p. 58, n. 4)
39. Castelnau-sur-Auvignon, Coudom, Gers, 1855. Bl. T. 91
c. 2,000 Elusates/Sotiates with some *monnaies-à-la-croix*. 4 specimens, 2 of each, weighed 2·70 gm. N. (p. 58, n. 4)

Hoards with Inadequate Details Recorded or Available

40. Drudas, Cadours, Haute-Garonne, 1836. Bl. T. 86
Only coin recorded is P.

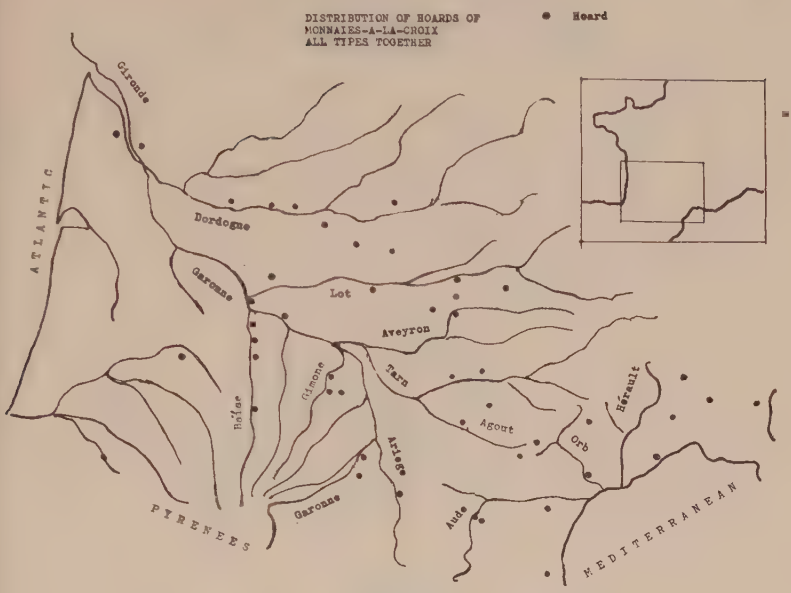
41. Aude, Uncertain location, 1856. T. 17
c. 250 coins, with Roman republican; no other details.
42. Ladern, Aude. T. 18
43. Pomas, Aude. *Ogam* 1965, 78
44. Moussan, Narbonne, Ande, 1968. —
A preliminary notice of this hoard has appeared in *BSFN* 23 (1968), 246, and has been kindly brought to my attention by M. J.-C. Richard of Montpellier. He is preparing a full report on the hoard, which contained coins of approximately the types of the Béziers hoard.
45. Sauve, Vigar, Gard, before 1839. T. 85
46. Cox, Cadours, Haute-Garonne 1837. T. 87
47. Aiguillon, Agen, Lot-et-Garonne. T. 145
Urn burial, with *monnaies-à-la-croix*.
48. Monastruc, Villeneuve-sur-Lot, Lot-et-Garonne. T. 146
49. Moncrabeau, Nérae, Lot-et-Garonne, before 1866. T. 147
50. Izeste, Oloron, Bas Pytenées, 1827. T. 201

APPENDIX B

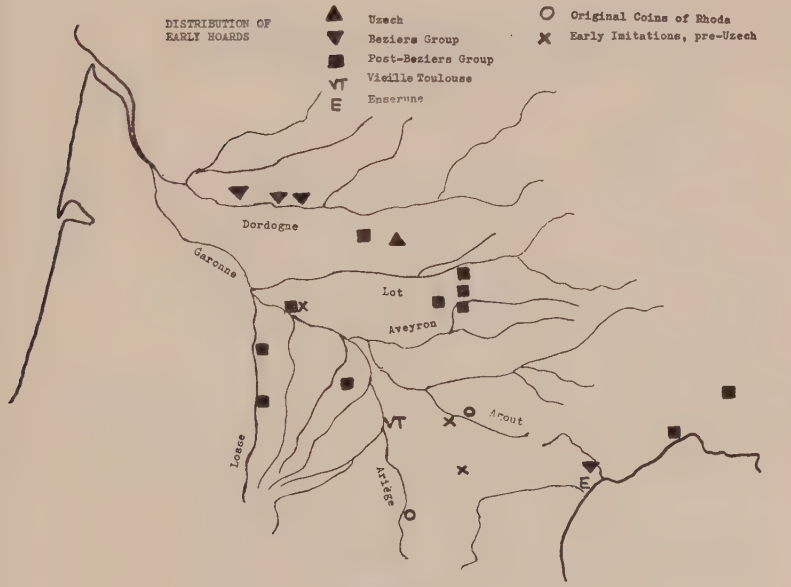
KEY DATES AND HOARDS RELATED

	Date	*Description*	*Hoard*	*Weight in grammes*
1.	Before 200 B.C.	Hoard of early Rhoda imitations	UZECH	4·35–4·7
2.	c. 200 B.C.	Overstrike of Bridiers hoard type		4·3
3.	200–175 B.C.	First phase of *monnaies-à-la-croix*:		
		with gold staters	ROUQUETTE	
		with Poitou types	LESTRADE	3·4–4·85
		with others heavier, worn	ST. CAPRAISE	3·75
4.	c. 175 B.C.	*Monnaies-à-la-croix* established in many varieties, two weights, the heavier worn	BÉZIERS	4·6–4·7 3·5–3·65
5.	160–150 B.C.	Spanish hoards containing cut and worn *monnaies-à-la-croix*	VALERA, DRIEVES	3·5–3·85
6.	150–125 B.C.	Successors of Béziers types, probably several hoards	LA LOUBIÈRE	3·4–3·5
7.	c. 125–120 B.C.	Wave of hoards, by now established in four series, Dolphins (Tolosates), Negroids (Arecomici),		

[*continued on page 73*


DISTRIBUTION OF HOARDS OF
MONNAIES-A-LA-CROIX
ALL TYPES TOGETHER
Hoard
Gironde
ATLANTIC
Dordogne
Garonne
Lot
Aveyron
Tarn
Agout
Orb
Hérault
Ariège
Aude
Garonne
PYRENEES
MEDITERRANEAN

MAP 1.


DISTRIBUTION OF
EARLY HOARDS
Uzech
Beziers Group
Post-Beziers Group
VT Vieille Toulouse
E Enserune
Original Coins of Rhoda
Early Imitations, pre-Uzech
Dordogne
Garonne
Lot
Aveyron
Agout
Lozère
Ariège
VT
E

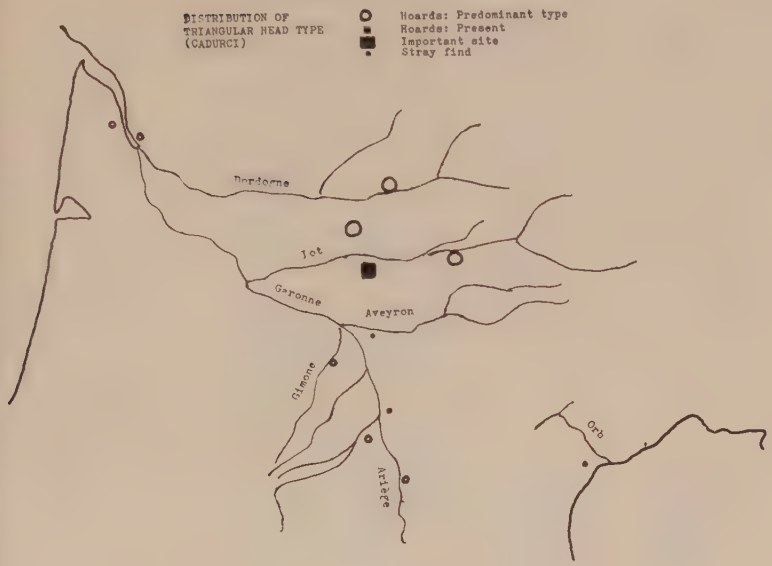
MAP 2.

DISTRIBUTION OF
DOLPHIN TYPE
(TOLOSATES)
Hoard: Predominant Type
Hoard: Present
Important Site
Stray find
Dordogne
Lot
Tarn
Gironde
Ariège
Agout
Orb
Hérault
Garonne
Aude

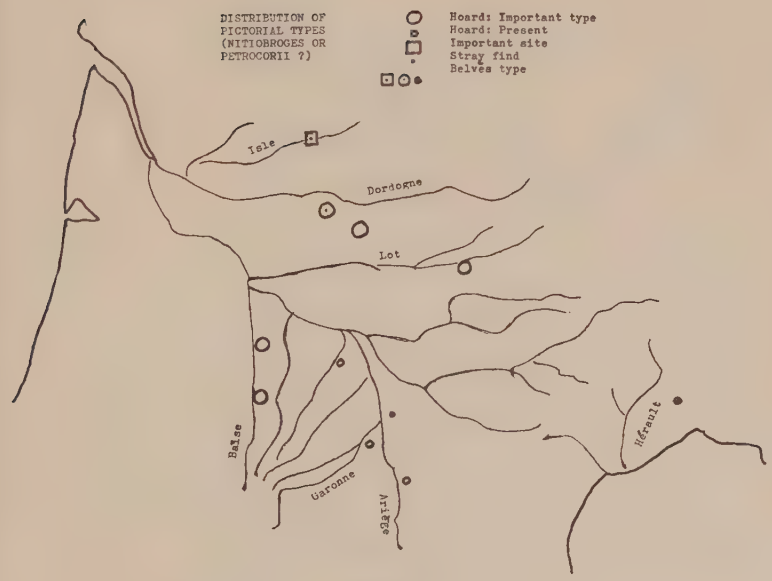
MAP 3.

DISTRIBUTION OF
NEGROID HEAD TYPE
(VOLCAE ARECOMICI)
Hoard: Predominant Type
Hoard: Present
Important site
Stray find
Dordogne
Lot
Garonne
Baïse
Gironne
Ariège
Orb
Hérault
Aude

MAP 4.


DISTRIBUTION OF
TRIANGULAR HEAD TYPE
(CADURCI)
Hoards: Predominant type
Hoards: Present
Important site
Stray find
Dordogne
Lot
Garonne
Aveyron
Ariège
Orb

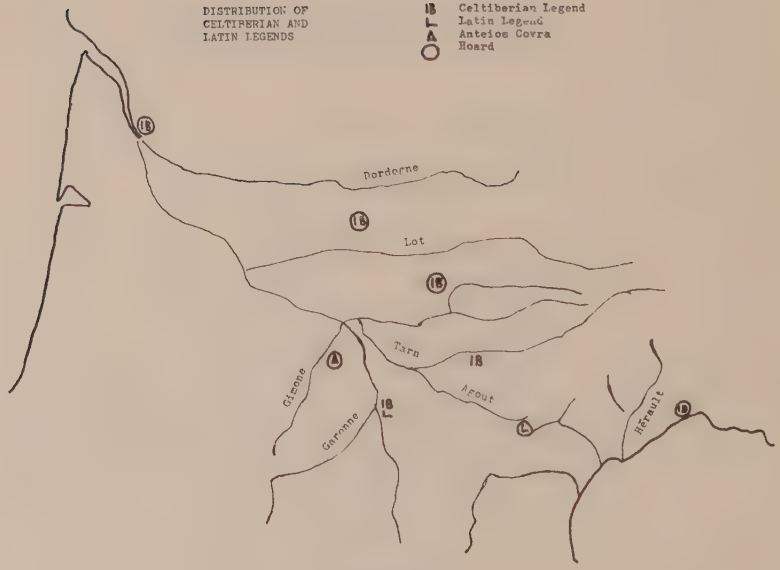
MAP 5.


DISTRIBUTION OF
PICTORIAL TYPES
(NITIOBROGES OR
PETROCORII ?)
Hoard: Important type
Hoard: Present
Important site
Stray find
Belvès type
Isle
Dordogne
Lot
Baïse
Garonne
Ariège
Hérault

MAP 6.

DISTRIBUTION OF
TARN / HERAULT-TYPE
(RUTENI)
Hoards
Isolated finds
Isle
Lot
Tarn
Aveyron
Agout
Orb
Hérault
Garonne

MAP 7.


DISTRIBUTION OF
CELTIBERIAN AND
LATIN LEGENDS
Celtiberian Legend
Latin Legend
Anteios Covra
Hoard
Dordogne
Lot
Tarn
Aveyron
Agout
Hérault
Garonne

MAP 8.

	Date	*Description*	*Hoard*	*Weight in grammes*
		Triangles (Cadurci), Pictorials (Nitiobroges/-Petrocorii?)		
		Pictorials prominent	ÎLE-DE-NOÉ	3·2–3·5
		Perhaps similar	MIRANDE/CONDOM	3·2–3·3
		Dolphins, Negroids, and Triangles	CAPDENAC	3·15–3·25
		Dolphins, Negroids, Triangles, and Pictorials	ST. ÉTIENNE DES LANDES	3·25–3·5
		Negroids and Dolphins only	LATTES TOUR MAGNE	3·15–3·55
8.	121 B.C.	Defeat of Arverni and Ruteni by Romans, cause of preceding hoards?		
	118 B.C.	Foundation of colony of Narbo		
	109 B.C.	Roman campaigns against Cimbri and Teutones		
9.	106 B.C.	Fall of Tolosa to Romans, causing wave of hoards?	CAUZÉ	2·85–3·1
			PINSAGUEL	2·5–3·0
		All probably contain Dolphins, Negroids, Triangles, and Pictorials	PAMMIERS	2·6–3·0
			ST. SAUVEUR	2·65–3·15
			BLAYE	2·65
		Possibly contemporary, mixed with Elusates/Sotiates type	CASTELNAU SUR AUVIGNON	2·7
10.	100 B.C. and after	Vieille Toulouse active, likewise St. Jean-de-Verges, mostly worn Dolphins	—	2·0–2·25 av.
11.	c. 80 B.C.	Worn Dolphins with Roman denarii down to 83 B.C.	BOMPAS	2·4–2·75
12.	78–77 B.C.	Sertorian War, leading to wave of Tarn/Hérault hoards? First appearance of coins attributable to Ruteni	MÈZE	2·15–2·3
			CASTRES	,,
			GOUTRENS	,,
			LODÈVE	,,
			LA CROUSATIÉ	,,
			LA FAJOLLE	,,
13.	75–65 B.C.	Activity at Vieille Toulouse declines, likewise at St. Jean-des-Verges		1·84 av.
14.	75–50 B.C.	Light Pictorial types, examples also in Montargis and Cuzance hoards	BELVÈS	1·8–1·9
15.	75–50 B.C.	Mainly *Kaletedou* hoard but contains Belvès type	MONTARGIS	1·8–1·9
16.	60–50 B.C.	Light coins of Triangle type, with coins of Lucterios (c. 52 B.C.)	CUZANCE	1·3
17.	52–51 B.C.	Defeat of Gauls at Alesia, deposits sealed in burial trenches include Negroid and Triangle of Cuzance type		

APPENDIX C

LIST OF COINS ILLUSTRATED

CR = Charles Robert. BN = Bibliothèque Nationale, Paris. T = H. de la Tour. MP = Musée de Peronne. *RN* = *Revue Numismatique*. *RBN* = *Revue Belge de Numismatique*

The most practical course has been to reproduce line engravings from nineteenth-century works which, collectively, provide a good coverage of *monnaies-à-la-croix*. Relatively few published photographs of actual coins are available.

FIG. I (p. 34). *Early imitations of drachms of Rhoda*

1. BN 2333; 4·93 = CR i, 2.
2. BN 23 25; 4·86 gm.
3. T viii CR (C).
4. BN 2346; 4·79 gm.
5. CR i, 6; 4·39 gm.
6. CR i, 7; 4·57 gm.
7. CR i, 8; 4·17 gm.

Uzech hoard type

8. MP 2; T. lv; Uzech hoard.
9. MP 3; T. lv; Uzech hoard.

Bridiers type overstruck by monnaie-à-la-croix

10. RN 1907, xiv, 16; 4·30 gm.

Béziers hoard types and associated types

11. CR i, 13; 4·70 gm; Béziers hoard.
12. CR i, 18; 4·69 gm; ,, ,,
13. CR i, 9; 4·60 gm.; ,, ,,
14. CR i, 12; 4·60 gm.; ,, ,,
15. CR i, 14; 3·53 gm.; ,, ,,
16. CR i, 36; 3·41–5 gm.; several from Vieille Toulouse.
17. CR i, 11; 3·51 gm.; Béziers hoard.
18. CR ii, 3; 3·55 gm.; ,, ,,
19. CR ii, 2; —; ,, ,,
20. CR ii, 1; 3·63 gm.; ,, ,,
21. CR ii, 6; 3·53 gm.; ,, ,,
22. CR ii, 12; 3·55 gm.; ,, ,,
23. CR i, 25; 3·65 gm.; Béziers hoard. Cf. Montpellier 421–3.

24. CR i, 10; 3–62 gm.; from Béziers = BN 2956.
(For an additional coin from Béziers, see iii, 58.)

FIG. II (p. 42). *Spanish hoard types*

25. BN 2954; 3·38 gm.
26. CR ii, 4; 3·50 gm. = BN 3108.
27. CR ii, 13; 3·53 gm.; M. Lyons.

Dolphin types—Tolosates or Volcae Tectosages

28. RN 1901, iii, 28/32; St. Étienne-des-Landes hoard.
29. CR ii, 8; lead; reconstructed from several examples.
30. CR ii, 11; 2·87 gm.; BN.
31. RN 1901, iii, 27/35; St. Étienne-des-Landes hoard.
32. RN 1841, vi, 10; Île-de-Noé hoard.
33. CR ii, 10; BN.
34. RN 1841, vi, 12; Île-de-Noé hoard.
35. RN 1901, iii, 29/30; St. Étienne-des-Landes hoard.

Dolphin types—variant

36. CR ii, 7.

Negroid head types—Volcae Arecomici

37. BN cf. 2976; 2·63 gm.
38. CR i, 15; 2·52–2·80 gm.
39. BN 2986; 2·55 gm.
40. T viii CR (F)
41. RN 1841, vii, 8; Condom-Mirande hoard.
42. RN 1841, vi, 5; Île-de-Noé hoard.
43. RN 1901, iii, 18/17; St. Étienne-des-Landes hoard.
44. BN 3040; 3·85 gm.
45. RN 1839; Bouches-de-Rhône hoard.
46. CR i, 22; 2·70; BN.
47. CR i, 19; 3·49 gm.; Blaye hoard.
48. CR i, 21; Musée St. Germain.
49. RN 1840, xxi, 5; Île-de-Noé hoard.

Negroid head types—Variants

50. CR i, 16; 2·92 gm.; = BN 2975.
51. RN 1841, vii, 1; Île-de-Noé hoard.
52. CR i, 17; 3·75 gm.; BN.

FIG. III (p. 48). *Precursors of Triangular head types*

53. RN 1841, vi, 9; Île-de-Noé hoard.
54. RN 1841, vii, 2; „ „
55. CR ii, 20; Musée St. Germain.

56. RN 1901, iv, 49/50; St. Étienne-des-Landes hoard.
57. RN 1901, iv, 52/3; „ „ „
58. CR ii, 19, 3·57 gm. Béziers hoard. Cf. Montpellier 429–32; Périgueux 118, found at Ecornabœuf.

Triangular head types—Cadurci

59. RN 1901, iv, 66/7; St. Étienne-des-Landes hoard.
60. RN 1901, vii, 70/1; „ „ „
61. CR ii, 16; BN.
62. RN 1839, viii, 6; from Montauban.
63. CR ii, 18; 3·17 gm.; Capdenac hoard = BN 3271.
64. CR ii, 17; 3·50 gm.; „ „

Triangular head types—Cuzance hoard types

65. RBN 1879, xiii, 10; —; Cuzance hoard.
66. RBN 1879, xiii, 8; 1·30 gm.; „
67. RBN 1879, xiii, 7 *bis*; 1·30 gm. „
68. RBN 1879, xiii, 1; 1·29 gm.; „
69. RBN 1879, xii, 1; 1·29–1·30 gm. „
70. RBN 1879, xii, 9; 1·28 gm.; „
71. RBN 1879, xiii, 3, 1·20 gm.; „
72. RBN 1879, xii, 1; 1·28 gm.; „
73. RBN 1879, xiii, 11; —; „
74. RBN 1879, xiii, 14; 1·30 gm.; „
75. RBN 1879, xii, 13; —; „
76. RBN 1879, xii, 12; —; „

Pictorial types—Nitiobroges or Petrocorii?

77. T ix CR (O).
78. CR ii, 22; 330–40 gm.; Île-de-Noé hoard.
79. RN 1841, vi, 1; Île-de-Noé hoard.
80. RN 1901, viii, 98/9; St. Étienne-des Landes hoard.
81. CR ii, 23; 3·40 gm.; Musée St. Germain.
82. RN 1841, vii, 4; Condom-Mirande hoard.
83. RN 1841, vii, 6; Condom-Mirande hoard.
84. RN 1841, vi, 4; Île-de-Noé hoard.
85. RN 1839, viii, 2; Drudas hoard.
86. CR ii, 24.

Fig. IV (p. 52). *Pictorial types, continued.*

87. RN 1901, vii, 78/9; St. Étienne-des-Landes hoard.
88. RN 1901, vii, 82/3; „ „ „
89. RN 1901, vii, 62/3; „ „ „
90. RN 1901, iv, 36/7; „ „ „
91. RN 1901, iv, 41/40; „ „ „

92. RN 1841, vi, 7; Île-de-Noé hoard.
93. RN 1901, viii, 121/2; St. Étienne-des-Landes hoard.
94. RN 1901, viii, 115/16; „ „ „
95. BN 3204; 2·97 gm.
96. CR ii, 26; 2·24 gm.; Musée St. Germain.
97. RN 1901, viii, 109/10; St. Étienne-des-Landes hoard.
98. RN 1901, viii, 123/4; „ „ „
99. RN 1901, viii, 128/9; „ „ „
100. RN 1901, viii, 132/3 „ „ „
101. RN 1901, viii, 113/14 „ „ „

Pictorial types—Belvès hoard types

102. CR ii, 28; 1·86 gm.
103. RN 1886, i, 11.
104. RN 1886, i, 9.
105. RN 1886, i, 6.
106. CR ii, 29; 1·83 gm.; Mèze hoard.
107. RN 1886, i, 3.
108. CR ii, 30; 2·15 gm.; = RN 1886, i, 4.
109. RN 1886, i, 1.
110. CR ii, 27; = RN 1886, i, 12.
111. RN 1886, i, 13.
112. RN 1886, i, 14.
113. RN 1886, i, 15.
114. RBN 1879, xiii, 17; 1·78 gm.; Cuzance hoard.

Pictorial types—variants

115. CR iii, 4; 1·80 gm.; = RN 1886, i, 7; BN.
116. CR iii, 1; 3·40–3·50 gm.; Île-de-Noé hoard.

Fig. V (p. 55). *Tarn/Hérault types—boar reverse*

117. CR iii, 7; 2·23 gm.; Goutrens hoard.
118. CR iii, 6; 2·25 gm.; „ „
119. CR iii, 5; 2·21 gm.; „ „
120. CR iii, 8; 2·26 gm.; „ „

Tarn/Hérault types—'torque' type

121. *Ogam* vi (1954), v, 3/5.
122. *Ogam* vi (1954), v, 4/5.

Tarn/Hérault types—'fan' type

123. CR ii, 35; 2·25–30 gm.; Musée St. Germain.
124. CR ii, 34; 2·25–30 gm.;

Inscribed Coins—Untikia

125. CR iii, 19; 3–45 gm.; = BN 3558.

Inscribed Coins—Akerekonton

126. RN 1901, viii, 134–5; St. Étienne-des-Landes.
127. CR iii, 10; 2·90 gm.; from Vieille Toulouse.

Inscribed Coins—Setubal

128. CR iii, 11; 1·72 gm.; = BN 3563.

Inscribed Coins—Covertomotul

129. CR iii, 12; BN.
130. CR iii 14; 2·0 gm.; from Vieille Toulouse; BN.
131. CR iii, 13; 2·85 gm.; from Vieille Toulouse; BN.
132. CR iii, 15; 2·40 gm.; BN.
133. CR iii, 16; 6·24 gm.; from Vieille Toulouse.
134. CR iii, 17; 0·19 gm.
135. CR iii, 20; 0·20 gm.; = BN 3565 from Vieille Toulouse.

Inscribed Coins—Anteios Covra

136. CR iii, 21; 2·53 gm.; from Vieille Toulouse = BN 3569.

Obols or Minims

137. BN 3555; 0·35 gm.
138. BN 3406; 0·42 gm.
139. CR ii, 14; 0·40–0·48 gm.
140. BN 3371; 0·30 gm.
141. BN 3373; 0·35 gm.; BN.
142. CR ii, 15; 0·25–0·44 gm.
143. BN 3408; 0·30 gm.
144. RN 1839, viii, 12.
145. CR iii, 18; 0·27 gm.; BN

So-called Volcae Tectosages Emigrés

146. CR i, 32; 1·85 gm.; BN 9282.
147. CR i, 30; 1·91 gm.
148. CR i, 28; 1·92 gm.; BN 9293.
149. CR i, 33; 0·68 gm.; BN; cf. Warasdin type of silver tetradrachm from Noricum.

THE FINANCIAL ORGANIZATION OF REPUBLICAN SPAIN

By M. H. CRAWFORD

[SEE PLATE VI]

THE Cordova hoard, consisting of Roman and Iberian denarii and victoriati with some silver jewellery, was discovered in 1916. The jewellery, with two of the Roman denarii which had been pierced and used as ornaments, was published by Hildburgh in *Archaeologia*, 1921–2, 169. The coins were summarily published by Mattingly in *NC* 1925, 395, the Iberian pieces more fully by Jenkins in *MN* 1958, 57. But the coins themselves have suffered over the years some disconcerting vicissitudes and it seems desirable to put the record straight (see Appendix). A careful look at the reconstructed hoard, the only sizeable hoard of Roman and Iberian silver coins of the second century B.C. preserved for study, throws important new light on the monetary and financial history of Republican Spain.

It is apparent that the latest and finest Republican denarii are markedly more worn than the finest Iberian denarii (see **Pl. VI**). This suggests that there was a time-lag of some years between the striking of the Republican denarii in question and their arrival in Spain and that, although the latest Republican denarius in the hoard is of 110,[1] the hoard was not actually buried till the last years of the century.[2] Other evidence supports the view that Republican coins were slow in arriving in Spain.

The condition of the Republican and Iberian coins (all but one of bronze) from the camps at Numantia[3] is significant. Of the Republican coins from the camp of 153 and 137, none is described as *vorzüglich*, in excellent condition;[4] of the Iberian coins, six are so described. Similarly, the Scipionic camps of 134/3 provided no

[1] Dates of Republican issues are those of M. H. Crawford, *Roman Republican Coin Hoards*, Tables ii–xiii. Dates are B.C. unless otherwise described.

[2] A connection with the activities of the Cimbri and Teutones is conjectural.

[3] A. Schulten, *Numantia* iv, 235–56. The silver piece of Osca is plated and may therefore be an ancient forgery. It is best excluded from the argument.

[4] The denarius of Sex. Pompeius, published with the coins from the camp of 153 and 137, was not found in the excavations, but bought in the neighbourhood.

Republican coins, but two Iberian coins in excellent condition; the camp of 75/4 provided one Republican coin, against two Iberian coins in excellent condition.

Furthermore, the latest Roman coins both from the camps at Numantia and from Castra Caecilia[1] are decades earlier than the dates of the camps. At Numantia, the latest Republican pieces from the camp of 153 and 137[2] and from the camps of 134/3 are of about 170 (hence their worn state). The latest Republican piece from the camp of 75/4 is an uncia with Head of Roma/Double cornucopiae ROMA.[3] This is usually attributed to Sulla on the grounds that a double cornucopiae also occurs on a Sullan aureus and denarius.[4] But the uncia and its associated semuncia have no point of contact whatever—in weight-standard, fabric, or style—with the only bronze coin which is certainly Sullan, the As with L. SVLA IMPE.[5] They should be placed in the same period as the unciae struck by Q. Lutatius Cerco,[6] M. Herennius[7] (these with Head of Roma/Double cornucopiae[8]), and L. Hostilius Tubulus and the semunciae struck by L. Hostilius Tubulus[8] and L. Thorius Balbus[9]—the late second century B.C. The finds from Castra Caecilia, consisting of silver as well as bronze coins, are even more revealing. The latest Republican piece found in the camp, which dates from 79, is a denarius of C. Malleolus of the early first century B.C.

If then it is true that as late as the war against Sertorius there was no swift and steady flow of Republican coins into Spain, it seems improbable that the Roman troops serving in Spain in the long series of wars there were paid entirely or even predominantly with Roman coinage. We must turn to consider the date and function of the Iberian coinage.

This consists of a silver piece of the weight of a denarius with silver and bronze fractional pieces and is clearly copied from the denarius coinage. It was therefore instituted at some date after 212/1, the date of the introduction of the denarius.[10] It was in full swing by

[1] *Archäologischer Anzeiger* 1928, 12; 1930, 54; 1932, 346; A. Schulten, *Numantia* iv, 255.

[2] Excluding the denarius of Sex. Pompeius, see n. 4.

[3] E. A. Sydenham, *The Coinage of the Roman Republic* (hereafter *CRR*), no. 766.

[4] *CRR*, nos. 754–5.

[5] *CRR*, no. 767.

[6] *CRR*, no. 560.

[7] *CRR*, no. 568*b*.

[8] M. Bahrfeldt, *Nachträge und Berichtigungen zur Münzkunde der römischen Republik* i, 136.

[9] M. Bahrfeldt, *Nachträge* iii, 98.

[10] I continue to regard this date as certain—for a full discussion of the problem, see M. H. Crawford, *The Roman Republican Coinage* (forthcoming).

the end of the second century B.C., when it was associated with Republican denarii in a great group of hoards, among them Cordova.[1]

But greater precision should be possible. The first group of Republican hoards from Spain consists predominantly of Republican pieces of the end of the didrachm coinage or the beginning of the denarius coinage with coins of the Barcids in Spain.[2] All these hoards are clearly of the period of the Second Punic War and none contains Iberian denarii or associated pieces. We may therefore move the date of the institution of the Iberian coinage down to after about 200. In my view it falls very soon thereafter.[3]

The finds from Numantia[4] make it clear that the Iberian coinage began before 137, the date of the reoccupation of Camp III by C. Hostilius Mancinus. Since some of the Iberian coins from this camp show considerable wear, the date of the institution of the Iberian coinage may be placed well back into the first half of the second century B.C. Attempts to estimate how far back it is to be placed by arguments from the volume of Iberian coinage are prospectless. And unfortunately there is only one hoard of Roman and Iberian coins earlier than the group which includes Cordova and that is rather uninformative. It comes from Emporiae[5] and consists of only four Emporitan bronze coins and three Republican asses; the latest of these dates from the middle of the second century B.C. and the latest Emporitan piece is slightly later than the Emporitan material from Numantia. But since no asses were struck at Rome between about 150 and 115 and since there seems to have been a considerable time-lag in the arrival of Republican coins in Spain, little can be deduced from the hoard. At least it does not contradict a date for the institution of the Iberian coinage in the first half of the second century B.C.

The Cordova hoard itself is more helpful. As is well observed by

[1] M. H. Crawford, *Roman Republican Coin Hoards*, nos. 178, 180, 184–5, 188, 193, 196, 204–6.

[2] M. H. Crawford, op. cit., nos. 33, 75, 91, 94, 104, 107, 109, together with two new hoards, L. Villaronga Garriga, *Las monedas de Arse-Saguntum*, 119—Andalusia and Los Villares.

The hoards also contain a variety of indigenous coinages earlier than the Iberian denarius coinage.

[3] O. Gil Farrés has argued recently (*La moneda hispánica en la edad antigua*, 103, 114, 159, and 164—followed without discussion by R. Martín Valls, *Boletín del Seminario de estudios de Arte y Arqueologia*, 1966, 207) that the Iberian denarius coinage dates from after 133. Since he does not discuss the evidence of the finds from Numantia, his arguments are not convincing.

[4] See p. 79, n. 3.

[5] M. H. Crawford, op. cit., no. 136.

Jenkins,[1] the amount of wear shown by the most worn, and therefore presumably earliest, of the Iberian denarii is comparable with that shown by the earliest Roman denarii. These are of about 200 and the Iberian denarii should not be of widely different date.

Another argument may be used to place the institution of the Iberian coinage in the early second century B.C. Of the two large groups of Iberian denarii in the Cordova hoard, those of Osca are more worn than those of Icalgusken (or Icalosken) and are held by Jenkins, surely rightly, to have begun earlier.[2] It is remarkable that despite this greater wear their average weight is 4·01 gr.,[3] approaching the weight of the Republican denarii of the earliest period. It is these denarii which are represented in the Spanish hoards of the Second Punic War, with an average weight of 4·40 gr.,[4] and it is difficult to avoid the conclusion that the Iberian coinage began when these denarii still formed the largest part of the circulating medium. By way of contrast, the denarii of Icalgusken in the Cordova hoard have an average weight of only 3·84 gr., close to the average weight of the Republican denarii in a typical hoard of the mid second century B.C., the west Sicily hoard—3·87 gr.[5]

If the institution of the Iberian coinage certainly belongs in the first half of the second century B.C. and there are some grounds for attributing it to the very beginning of the century, it remains to try and suggest a precise date. The most probable date seems to me to be 197. For this year six praetors were elected for the first time (Livy xxxii, 27, 6) and one was assigned to each of the Spanish provinces, M. Helvius receiving Hispania Ulterior, C. Sempronius Tuditanus Hispania Citerior (Livy xxxii, 28, 2). They were sent out with the express instructions, 'terminare . . . qua ulterior citeriorve provincia servaretur', to establish the boundaries of the two provinces (Livy xxxii, 28, 11). The institution of the Iberian coinage as a medium

[1] *MN* 1958, 57.

[2] *MN* 1958, 66. The date suggested there for the close of the first period of activity of the mint of Osca is modified in *Numario Hispánico*, 1958, 136.

[3] Plated and halved coins are excluded from the averages.

[4] The average weight of those pieces in the Cheste, Tivisa, and Valera hoards (M. H. Crawford, op. cit., nos. 75, 94, and 109) whose weights are known to me.

[5] M. H. Crawford, op. cit., no. 135.

For the weight-standards of the denarii of Osca and Icalgusken, see also G. K. Jenkins, *Numario Hispánico*, 1958, 142–4. The argument used there that Osca could not have copied the heavy Roman denarius standard because she did not also copy the light standard is fallacious. A city, having once adopted a Roman standard, could keep to it even if the Roman standard changed slightly; Emporiae is a case in point.

For the coinage of Icalgusken, see L. Villaronga Garriga, *Los denarios con leyenda Icalgusken*.

for paying taxation could well have formed part of their duties. Certainly Spain paid a *stipendium* (Cicero, *In Verr.*[2] iii, 12) and Carthage apparently paid her *stipendium*, here an indemnity, in coin (Livy xxxii, 2, 1–2 with G. K. Jenkins and R. B. Lewis, *Carthaginian Gold and Electrum Coins* 53). Livy's coverage of monetary matters is not good—witness his failure to record Rome's debasement of her silver coinage during the Second Punic War (Zonaras viii, 26, 14)—and it is not surprising that no record of the institution of the Iberian coinage is preserved.

But if this occurred in 197, it provides a plausible occasion for the outbreak of the revolt in Hispania Ulterior at the end of that year (Livy xxxiii, 21, 6–9). The Iberian coinage was produced only in Citerior and its enforced use by Ulterior was not likely to encourage a favourable view of Roman rule. That the coinage was used in Ulterior is proved by the hoards found there, among them Cordova.

Naturally the mechanism by which the Iberian coinage, once produced, was used in payment of taxation and thus of Roman soldiers serving in Spain is uncertain. But it is worth drawing attention to a parallel to suggest that the mechanism need not have been simple. It seems certain that coinage struck in Ireland in the thirteenth century on an English standard was struck to be paid into the English exchequer. This coinage was not struck regularly nor was it necessarily paid over as soon as struck. And there is clear evidence of payment being made when no Irish coinage was being produced.[1]

A corollary of the proposed dating of the Iberian coinage is that Livy's references to *argentum Oscense*[2] may be taken at their face value. It was brought back to Rome by victorious generals, presumably as booty and not as part of the regular surplus, in 195 (Livy xxxiv, 10, 4–7—note that M. Helvius brought it from Ulterior), in 194 (Livy xxxiv, 46, 2), and in 180 (Livy xl, 43, 6). Since the denarii of Osca are among the earliest, the name *argentum Oscense* was presumably extended from them to the whole Iberian coinage.

Instituted to serve the fiscal needs of Rome, the Iberian denarius coinage was last used in the service of a rebellious pro-magistrate. The evidence of the hoards makes it clear that the latest Iberian

[1] R. H. M. Dolley, *Proceedings of the Royal Irish Academy* lxvi, 1968 (C), 235.

[2] For the controversy over the meaning of this phrase, see R. Thomsen, *Early Roman Coinage* ii, 185–91, with earlier bibliography. Linked to the argument over the date of the denarius, the discussion is entirely circular.

denarius issues are of the time of Sertorius[1] and there can be little doubt that they were struck for Sertorius. Not only did he have his headquarters at Osca (Plutarch, *Sert.* 14, 2, cf. 25, 4; Strabo iii, 4, 10; Velleius ii, 30, 1), one of the mints producing Iberian denarii in this period, but he was also in command of a plentiful supply of money for most of the war, in striking contrast to his opponents. Despite his (presumably partial) remission of taxes (Plutarch, *Sert.* 6, 4), he was able in the early stages of the war, before the arrival of Perperna in the winter 77/6 with a plentiful supply of money (Plutarch, *Sert.* 15, 1), to squander precious metals in display (Plutarch, *Sert.* 14, 1, cf. 13, 5 and 14, 3). From Contrebia in 77 he exacted only a moderate sum of money (Livy xci, fr. 2—note also *stipendium datum* [to his cavalry]).[2] His opponents, Metellus in Hispania Ulterior from 79, Pompey in Citerior from 76, were in a very different position. The speech of the consul C. Aurelius Cotta in 75 records their lack of money (Sallust, *Hist.* ii, 47M, 6) and Pompey's letter of the winter 75/4 claims in addition that in 76 Metellus had had money only from Gaul (Sallust, *Hist.* ii, 98M, 9)[3] and that he himself had not had even this and had been forced to use his personal assets and to borrow as well (Sallust, *Hist.* ii, 98M, 2 and 9; cf. ii, 97M, Cicero, *pro Balbo*, 40).

Pompey's letter ended with the celebrated threat to return to Rome if his demands were not met. They were (Plutarch, *Pomp.* 20, 1; *Sert.* 21, 5; *Luc.* 5, 2). The only really large issue of the 70s, that of C. Postumius,[4] may be dated to 74 and regarded as the response to the threat. Significantly, three Spanish or Portuguese hoards close with precisely this issue. Pompey and Metellus went on to defeat Sertorius and after his murder, his murderer Perperna. The Iberian followers of Sertorius, thus leaderless, made their peace with Rome and their silver coinage, doubtless identified with their support of Sertorius, came to an end. Their *stipendium* henceforth was paid in Roman denarii.[5]

[1] *MN* 1958, 61–2; L. Villaronga Garriga, *Ampurias*, 1964–5, 165–73.

[2] He ran short of money in the later stages of the war—Pompey's letter (see below) suggests that Sertorius' army is not being paid any more than his own. To this late period belong the negotiations with Mithridates for a subsidy (Plutarch, *Sert.* 24, 2) and the confiscations recorded by Diodorus (xxxvii, 22*a*).

[3] The issue of Cn. Lentulus (*CRR*, nos. 752–752*a*) *may* represent the money provided by Gaul and Sallust (*Hist.* ii, 34M) *may* provide a reference to its production—'quae pecunia ad Hispaniense bellum Metello facta erat'.

[4] M. H. Crawford, op. cit., nos. 300, 305, 307.

[5] I should like to thank P. A. Brunt, G. K. Jenkins, and H. B. Mattingly for comments on this article. Its final form is my responsibility.

APPENDIX

THE CORDOVA HOARD

In 1921 Hildburgh gave 1 Iberian victoriatus and 2 Republican denarii to to the Department of Coins and Medals of the British Museum. The Greek Register, confirmed by *NC* 1922, 173, states that the Iberian piece (Reg. 1921–12–11–1) comes from the Cordova hoard. No similar statement is found in the Roman Register, but since both Republican pieces are distinctive (Reg. 1921–12–11–2, denarius of C. Maiani with legend C·MINI and Reg. 1921–12–11–3, denarius with wreath) and since the latter is mentioned both in Hildburgh's publication of the jewellery and in Mattingly's publication of the coins, the same provenance may be presumed.

In 1922 Hildburgh gave 6 Roman denarii to the Department of Coins and Medals (Reg. 1922–3–15–1 to 6). No provenance is recorded in the Roman Register, but the ticket under one of the coins (Reg. 1922–3–15–1, base metal denarius of C. Metellus) states that it comes from the Cordova hoard. One of the other pieces probably comes from the hoard (Reg. 1922–3–15–5, brockage of M. Cipi M. f.) and one from the extraneous coins associated with the hoard before it came into Hildburgh's hands (Reg. 1922–3–15–6, denarius of C. L. Caesares).

In 1929 Hildburgh gave 28 Iberian denarii to the Department of Coins and Medals (Reg. 1929–4–10–1 to 28). The Greek Register records that 4 come from 'the Cordova hoard', the remainder from 'two finds, (1) at Cordova, (2) obtained in Madrid, which may originally have been the same, and both perhaps part of the original Cordova hoard'.

Later in the same year Hildburgh gave the Department of Coins and Medals 1 Iberian denarius (Reg. 1929–7–9–1), probably from the Cordova hoard, and 11 Roman denarii (Reg. 1929–7–9–2 to 12), not from the Cordova hoard.

Later still in the same year Hildburgh gave the Department of Coins and Medals 3 Roman denarii (Reg. 1929–9–7–1 to 3), not from the Cordova hoard.

In 1932 Hildburgh gave the British and Medieval Department the jewellery from the Cordova hoard (Reg. 1932–7–6–2 to 16, 19 to 22), together with 2 denarii which had formed part of the jewellery (Reg. 1932–7–6–17, denarius with wheel and Reg. 1932–7–6–18, denarius of C. Antesti) and 165 other coins from the hoard. These are as follows: 156 Republican coins (Reg. 1932–7–6–23) and 1 quinarius of M. Cato, 1 denarius of L. Rubri Dossen, 1 denarius of M. Barbatius, and 6 Roman Imperial denarii (Reg. 1932–7–6–24). He also seems to have deposited in the British and Medieval Department the coins described in the next paragraph.

In 1934 the following coins were transferred from the British and Medieval Department, where they had never been registered, to the Department of Coins and Medals—9 Iberian denarii 'from the Madrid hoard' (Reg. 1934–10–10–11 to 18, 26), 25 Iberian denarii 'from the Cordova hoard' (Reg. 1934–10–10–19 to 25 and Reg. 1934–10–11–41 *bis* to 58), 10 Roman denarii 'from the Madrid hoard' (Reg. 1934–10–10–1 to 10), and 41 Roman denarii 'from the Cordova hoard' (Reg. 1934–10–11–1 to 41).

In 1968 7 Republican denarii were transferred from the British and Medieval Department to the Department of Coins and Medals (Reg. 1968–7–5–1 to 7) and at the same time 6 Republican denarii, already in the Department of Coins and Medals and apparently from the Cordova hoard, were registered (Reg. 1968–7–5–8 to 13). They have the same patination as the rest of the pieces from the hoard and are mentioned in Mattingly's publication.

Two problems arise, the first over the suggestion of different provenances for different sections of the hoard, and second over the divergent records of the number of coins found. As far as the Iberian pieces are concerned, there seems no reason to doubt that they are all from the one Cordova hoard. They are regarded by Jenkins as entirely homogeneous (*MN* 1958, 57) and Hildburgh's publication of the jewellery mentions only one hoard, bought in two lots (*Archaeologia*, 1921–2, 183). The only point to note is that the hoard included some obviously extraneous pieces, late Republican and Imperial coins in abominable condition, added to the hoard after its discovery and easily rejected. The later notices in the Greek Register of the Department of Coins and Medals for 1929 and 1934, suggesting that part of the Iberian material perhaps comes from a different Cordova hoard and part perhaps from a Madrid hoard, should be ignored. The confusion may have arisen because of the group of Roman denarii described as coming from a Madrid hoard. These display a patination different from that of the denarii described as coming from the Cordova hoard and should be separated from it.

The total number of Roman coins in the Cordova hoard is reported by Hildburgh as 222 and by Mattingly as 224. There appear in fact to be 225. The discrepancy between the first and last totals may be explained thus. Of the 225 coins, 154 are now in the British and Medieval Department (together with 9 extraneous pieces), 56 are in the Department of Coins and Medals (together with 3 extraneous pieces), and 15 (together with 1 extraneous piece) are listed by Mattingly, but are nowhere to be found. If we add the 7 denarii transferred in 1968 from the British and Medieval Department to the Department of Coins and Medals to the 154 coins still in the British and Medieval Department, the total of 161 is just three more than the total of 158, excluding extraneous pieces, registered in the British and Medieval Department in 1932. Presumably Hildburgh's original count, too

small by three, was taken over unchecked. Mattingly's error is more complex. He omitted seven of the pieces in the British and Medieval Department (three denarii of C. Reni, one of M. Fan C. f., two of M. Carbo and one of Mn. Aemilio Lep—the last has now been transferred to the Department of Coins and Medals, Reg. 1968–7–5–3) and included six out of the ten pieces in the Madrid group.

Both Hildburgh and Mattingly report 82½ Iberian coins. Only 64 were ever registered. In fact, Jenkins deduces from the tickets under the coins that the correct total is 80½ (*MN* 1958, 57, n. 1).

After this lengthy preliminary discussion, I come to the hoard. I list first the Roman pieces which seem to me to belong to the Cordova hoard (for the Iberian pieces, see *MN* 1958, 67–70), then the extraneous pieces associated with the hoard, then the pieces which belong to the Madrid group, finally the extraneous piece associated with this group. I list the issues which belong to the hoard in the order given in M. H. Crawford, *Roman Republican Coin Hoards*, Tables II–XI and give for each piece serial number, description, register number of the Department of Coins and Medals (where applicable), and weight. Pieces without register number are in the British and Medieval Department, pieces without register number and without weight are missing. The pieces in the last three categories are more summarily described.

Roman pieces belonging to the Cordova hoard (all pieces except the first are denarii).

1. Anonymous victoriatus		2·44	
2. Anonymous Dioscuri denarius	1934–10–11–30	4·09	
3.	1934–10–11–32	3·87	
4.		3·85	
5.	1934–10–11–27	3·55	
6.		3·53	
7.	1934–10–11–25	3·41	
8.	1934–10–11–14	3·39	
9.		3·31	
10. Denarius with club		3·60	
11. Denarius with wheel		3·77	Pierced
12. Denarius with wreath	1921–12–11–3	4·58	
13.	1934–10–11–31	3·50	
14. Denarius with anchor (late issue)	1934–10–11–39	3·58	
15. Anonymous Luna in biga denarius (published by Mattingly as a denarius with AV)	1934–10–11–12	3·71	
16. Denarius with ΛĀ		3·48	
17. Denarius with crescent (late issue)	1968–7–5–8	3·82	
18. L. COIL		3·75	

19.	CN. DO	1968–7–5–9	3·89	
20.				Missing
21.	PVR	1934–10–11–3	4·28	
22.	Anonymous Victory in biga denarius	1934–10–11–26	3·80	
23.			3·31	
24.	SAR		4·34	
25.	NAT	1934–10–11–5	3·83	
26.			3·66	
27.			3·62	
28.	C. SCR		3·86	
29.		1934–10–11–33	3·82	
30.	C·MAIANI (legend (C·MINI)	1921–12–11–2	3·64	
31.	L. SAVF	1934–10–11–16	3·95	
32.			3·93	
33.			3·93	
34.			3·50	
35.	P. SVLA		3·66	
36.			3·45	
37.			3·18	
38.			3·11	
39.	SAFRA	1934–10–11–40	3·81	
40.	FLAVS	1934–10–11–2	3·90	
41.			3·88	
42.		1968–7–5–12	3·87	
43.			3·62	
44.		1968–7–5–11	3·40	
45.			3·32	
46.			3·21	
47.		1968–7–5–13	3·18	
48.				Missing
49.	NATTA	1934–10–11–8	3·66	
50.			3·43	
51.	M. ATILI SARAN ↓		3·96	
52.		1934–10–11–22	3·86	
53.	M. ATIL SARAN ↓		3·75	
54.	Q. MARC LIBO	1934–10–11–7	3·94	
55.	L. SEMP PITIO		3·95	
56.		1934–10–11–18	3·86	
57.		1934–10–11–27	2·86	Base metal
58.	C. TER LVC		4·07	
59.			3·92	
60.		1934–10–11–10	3·85	
61.	L. CVP	1934–10–11–13	3·16	

62.	C. ANTESTI (dog on obverse)		3·90	
63.	— (dog on reverse with both fore-feet raised)		3·43	
64.			3·16	
65.	— (dog on reverse with one fore-foot raised)	1968–7–5–1	3·66	Pierced
66.	M. IVNI		3·98	
67.			3·70	
68.			3·43	
69.			3·41	
70.			3·37	
71.	AN RVF		3·68	
72.	CN. GEL		3·85	
73.	C. RENI		3·98	
74.			3·94	
75.			3·92	
76.			3·91	
77.			3·90	
78.			3·83	
79.			3·81	
80.			3·74	
81.			3·72	
82.			3·71	
83.			3·68	
84.			3·58	
85.			3·06	
86.	Anonymous Luna in biga of stags denarius		3·99	
87.	C. CVR TRIGE		3·83	
88.	L. IVLI	1934–10–11–28	4·26	
89.			3·84	
90.	SEX. POM	1968–7–5–2	3·79	
91.	SEX. PO		3·97	
92.	TI. VET		3·90	
93.		1934–10–11–15	3·89	
94.			3·75	
95.	M. BAEBI Q. F TAMPIL		3·97	
96.			3·96	
97.			3·91	
98.			3·90	
99.			3·88	
100.		1934–10–11–1	3·86	
101.			3·85	
102.	CN. LVCR TRIO		3·94	

103.			3·91	
104.			3·88	
105.	L. ANTES GRAG		3·94	
106.		1968–7–5–10	3·90	
107.			3·90	
108.			3·88	
109.			3·78	
110.			3·76	
111.				Missing
112.				Missing
113.				Missing
114.				Missing
115.	C. SERVEILI M. F.		3·98	
116.		1934–10–11–11	3·81	
117.	L. TREBANI	1934–10–11–20	3·85	
118.	C. AVG			Missing
119.	C. ABVRI GEM	1934–10–11–9	3·92	
120.			3·90	
121.	P. MAE ANT	1934–10–11–38	3·98	
122.			3·93	
123.			3·89	
124.			3·41	
125.	P. CALP		3·84	
126.			3·82	
127.	L. MINVCI	1934–10–11–35	3·95	
128.	M. MARC		3·95	
129.			3·88	
130.	M. ABVRI GEM		3·92	
131.			3·87	
132.			3·87	
133.			3·78	
134.	L. POST ALB		3·91	
135.	L. OPEIMI			Missing
136.	M. OPEIMI		3·91	
137.			3·87	
138.	M. ACILIVS M. F		3·88	
139.	M. VARG	1934–10–11–37	3·90	
140.	T. CLOVLI			Missing
141.	CN. DOM		3·90	
142.	Anonymous denarius with elephant's head		3·90	
143.	C. SERVEIL		3·88	
144.			3·88	
145.	C. CASSI		3·85	

146.	T. Q		3·88	
147.			3·87	
148.			3·81	
149.	C. METELLVS	1922–3–15–1	2·28	Base metal*
150.	M. PORC LAECA	1934–10–11–41	3·91	
151.			3·91	
152.			3·88	
153.			3·87	
154.	MN. ACILI BALBVS		3·91	
155.	Q. FABI LABEO		3·93	
156.			3·88	
157.			3·87	
158.	C. CATO		3·91	
159.			3·91	
160.			3·87	
161.			3·86	
162.			3·85	
163.				Missing
164.				Missing
165.				Missing
166.				Missing
167.				Missing
168.				Missing
169.	M. FAN. C. F		3·95	
170.			3·90	
171.			3·90	
172.			3·89	
173.			3·88	
174.			3·88	
175.			3·88	
176.			3·87	
177.			3·85	
178.			3·83	
179.			3·69	
180.	M. CARBO		3·90	
181.			3·88	
182.			3·88	
183.			3·83	
184.			3·81	
185.	Q. MINV RVF		3·96	
186.			3·93	
187.			3·90	
188.			3·87	
189.			3·81	

190. C. PLVTI		3·89	
191.		3·89	
192.		3·86	
193. CARB		3·89	
194.		3·84	
195. M. TVLLI	1934–10–11–19	3·89	
196. M. CALID, Q. MET, CN. FL	1934–10–11–36	3·91	
197.		3·90	
198.		3·90	
199. Q. CVRT, M. SILA		3·89	
200. M. SERGI SILVS Q		3·93	
201.		3·91	
202.		3·85	
203.	1934–10–11–23	3·84	
204.		3·82	
205. Anonymous denarius with Roma, wolf and twins	1934–10–11–34	3·87	
206. M. CIPI M. F	1922–3–15–5	3·96	Brockage
207.	1934–10–11–17	3·95	
208.		3·90	
209.		3·89	
210.		3·72	
211.		3·65	
212. MN. AEMILIO LEP	1968–7–5–3	3·85	
213. CN. BLASIO CN. F (palm/Æ)	1968–7–5–4	3·98	
214. (palm/Æ)		3·96	
215. AP. CL, T. MAL, Q. VR	1934–10–11–4	3·95	
216. C. PVLCHER	1968–7–5–5	3·84	
217.		3·82	
218. L. FLAMINI CILO		3·98	
219.		3·90	
220.	1934–10–11–6	3·88	
221.		3·84	
222.		3·84	
223.		3·77	
224. L. MEMMI	1968–7–5–6	3·94	
225. Q. LVTATI CERCO Q	1968–7–5–7	4·01	

Extraneous Roman pieces associated with the Cordova hoard (mentioned by Hildburgh in *Archaeologia* 1921–2, 182[1] and by Mattingly in *NC* 1925, 396).

Quinarius of M. Cato — British and Medieval Department

[1] The total of fourteen mentioned here results from the inclusion of a base metal denarius also included in the total of 222 pieces regarded as belonging to the hoard.

Denarius of L. Rubri Dossen	British and Medieval Department
Denarius of M. Barbatius	,, ,, ,,
Denarius of C. L. Caesares	Coins and Medals 1922–3–15–6
,, ,,	,, ,, 1934–10–11–21
Denarius of Tiberius (base metal)	,, ,, 1934–10–11–24
,, ,,	British and Medieval Department
Denarius of Nerva (not Nero)	,, ,, ,,
Three denarii of Trajan	,, ,, ,,
Denarius of Hadrian	,, ,, ,,
Denarius of Septimius Severus (base metal)	Missing

Roman pieces belonging to the Madrid group[1] (including one extraneous piece of Tiberius).

Denarius with crescent	Coins and Medals 1934–10–10–3
Denarius with star	,, ,, 1934–10–10–4
Denarius of L. Antes Grag	,, ,, 1934–10–10–8
Denarius of T. Clouli	,, ,, 1934–10–10–6
Brockage of Cn. Blasio Cn. f. (bucranium)	,, ,, 1934–10–10–2
Brockage of Mn. Aquil	,, ,, 1934–10–10–9
Denarius of Ap. Cl, T. Mal, Q. Vr	,, ,, 1934–10–10–5
Denarius of Q. Therm M. f	,, ,, 1934–10–10–10
Anonymous denarius with Head of Apollo/Jupiter in quadriga	,, ,, 1934–10–10–7
Denarius of Tiberius	,, ,, 1934–10–10–1

KEY TO PLATE VI

1. No. 216
2. No. 220
3. No. 221
4. No. 224
5. No. 225
6. *MN* 1958, 67–70, no. 68
7. Op. cit., no. 76
8. Op. cit., no. 78
9. Op. cit., no. 79

The first six are treated by Mattingly as part of the Cordova hoard, the last four not.

NOTES ON SOME ROMAN REPUBLICAN MONEYERS

By HAROLD B. MATTINGLY

WHILST reviewing Margaret Thompson's monograph on the Agrinion Hoard (see pp. 323 ff., below) I found myself compelled to re-examine critically the dating proposed by her collaborators for the thirty-nine denarii included in it. But it was clearly not feasible to deal with this topic properly in the context of the review, however extended. I therefore thought that it was best to publish my results as a separate article in the same volume. After one early anonymous denarius the Roman coins range fairly representatively from Syd. 349 (Cn. Do) to 494 (Ti. Minuci C. f. Augurini).[1] I shall be dealing under four main heads with certain key moneyers in the period covered by the hoard, but will start with one later group.

1. *The Narbo moneyers (Syd. 520–4)*

Rudi Thomsen and Michael Crawford rightly make this issue the cornerstone of their whole chronology. But it is less certain that they are right in accepting Velleius's 118 dating for the Narbo colony.[2] He is not a very reliable authority. He cannot date the post-Gracchan colony of Dertona and, though of Campanian family through his mother, he is muddled over the Campanian colonies of Puteoli, Buxentum, and Salernum, assigning them vaguely to the period 189–177.[3] He had only to read Livy xxxiv, 45 to know that the true date was 194. Moreover, Puteoli had this on public record. A prominent building inscription of 105 is headed 'in the ninetieth year of the colony'.[4] Why then should we prefer Velleius' testimony to Cicero? Cicero's evidence on the orator L. Crassus seems consistently to set Narbo later in his career than just one year after his phenomenal and

[1] See Margaret Thompson, *NNM* 159 'The Agrinion Hoard' 75 ff. and 118 ff. (Appendix), where Syd. 477 (Q. Pilipus) is in fact considered the latest coin. C. Serveili M. f. (Syd. 525.) goes with Syd. 450 f.

[2] Op. cit. 121 ff.: Velleius i, 15. 5 and ii. 7. 8. I am most grateful to Michael Crawford for much valuable discussion and for generously making available to me his still unpublished researches. The material can now readily be found in his *Republican Coin Hoards*, which is likely to prove a major breakthrough in numismatic studies.

[3] See Velleius i, 15. 2–5 and *RE* viii A, col. 638 f.

[4] *CIL* i², 2. 698 (on a wall opposite the Serapeum?).

precocious prosecution of C. Carbo at the age of twenty-one. Crassus prosecuted Carbo either as *adulescentulus* or *admodum adulescens*: he founded Narbo *adulescens*. In *de Oratore* i, 34. 154 f. Crassus is made to talk of himself as *adulescentulus* for some time after 119; he applies *adulescens* to a definitely later phase of his career, when he acquired that 'thirst' for Greek culture which he was partly able to satisfy as quaestor (c. 112?).[1] My argument against Velleius' dating was never based simply on a belief that the order of mention in *Brut.* 43. 159 f. was strictly chronological—prosecution of Carbo, defence of Licinia (113), Narbo, and then the later career. I would now concede that Cicero starts by following another principle—listing (*a*) first criminal prosecution, (*b*) first criminal defence, and (*c*) first big political speech. But observe how he continues after (*c*). 'Crassus henceforth was in constant demand: yet as tribune in 107 he made no mark at all.' The implication surely is that the Licinia and Narbo speeches lay so close together in time that they could be regarded as the watershed of Crassus' career.[2]

Such considerations as these led Ernst Badian to propose c. 115 as Narbo's date. He was able to show that it made good historical sense in that context.[3] I would now urge 114 as the precise year. A Porcius Cato was consul both in 118 and 114, which would help to explain Velleius' mistake. Significantly, one of the Narbo moneyers is L. Porcius Licinus (Syd. 520). Now in any year more than one junior magistrate at Rome was likely to have family connections with one of the consuls. Licinus' colleague, M. Aurelius Scaurus (Syd. 523), can be precisely identified as the consul of 108. He would have been praetor in 112 or 111 and could hardly have been moneyer later than 114. Narbo could still be linked with Roman fears for Gaul aroused by the movement of the migrating Cimbri westwards from the Balkans: by 113 they were in Noricum and justified those fears. Cn. Carbo was defeated and the way now lay open.[4]

Moneyers were sometimes fairly senior men at this period. I would instance M'. Aquillius and L. Valerius Flaccus (Syd. 557 and 565), whom Crawford dates c. 110 and who were consuls in 101 and 100

[1] See my article in *Hommages à A. Grenier*, 1961, iii, 1165 ff., and add *de Oratore* iii, 20. 75 to the Ciceronian references.

[2] A. E. Douglas did not know of my article and so seems unaware of the difficulty created by *multae deinde causae* for the orthodox Narbo dating: see his edition of the *Brutus* (1966), 123 f.

[3] *Mélanges Piganiol*, 1967, ii, 903 f.

[4] I readily abandon my tentative 110 dating: see op. cit. 1169 ff. Its numismatic basis was weak.

respectively.[1] Indeed the gap between the offices should probably be narrowed. Hoards seem to show that these two issues follow closely on that of C. Claudius Pulcher (Syd. 569). He too was a rather senior moneyer. We know from an inscription that he held the office between his quaestorship and his curule aedilate in 99. The crucial part of the stone (now missing) is guaranteed by two independent copies and there is no good reason for thinking that either the composer of the *elogium* or the mason muddled the order of Pulcher's first two offices.[2] Now Pulcher came at least a year late to the praetorship, but as a powerful patrician he will have hardly had to wait longer for the consulate than his contemporary L. Crassus. Crassus was born in 140 and was consul in 95: Pulcher (cos. 92) on this reckoning will have been born in 137. He could not really have been quaestor earlier than 109 or moneyer before 108.[3] M'. Aquillius and Flaccus will have to be put c. 107/6, which corresponds remarkably with what I have postulated for Scaurus.

This dating of Pulcher, Aquillius, and Flaccus may at first seem to involve intolerable crowding of coinage around 100. We cannot solve this by boldly shifting the Piso/Caepio issue to c. 96–94 with Sydenham. Caepio was quaestor when Saturninus was tribune for the second time. The coins cannot be separated from his year of office. But certain adjustments may be made all the same, as I hope to show elsewhere.[4] Meanwhile I would stress that Pulcher's career inscription looks very much like the kind of hard, objective evidence which numismatists should welcome. And I would further note that the 108 dating of Pulcher's moneyership fits in perfectly with Narbo in 114. If we work back provisionally from that date we may place the burial of the Riccia, Maserà, and S. Giovanni hoards c. 118, since no more than nine issues certainly intervene. Among the latest denarii in the three hoards are those of Cn. Dom. and C. Cassi (Syd. 514 and 502). On this reckoning they must be

[1] See *Republican Coin Hoards*, table xi. The Mars type and *apex* symbol show that Flaccus was the son of L. Valerius Flaccus *flamen Martialis* (cos. 131), not his nephew who was aedile in 99 (C. f. L. n?).

[2] See *CIL* vi. 1283 and i², 1. 200 with the notes.

[3] He was praetor in 95, consul in 92. After C. Gracchus twenty-seven was probably the minimum age for election to the quaestorship; twenty-five is the lowest age known after 181 (Ti. Gracchus). See A. E. Astin, *Latomus*, 1958, 49–64 on the whole question of legal age for magistracies.

[4] Thomsen and Crawford rightly insist on the quaestorship (op. cit. 122 and n. 19). Since quaestors entered office on 5 December and Saturninus' second tribunate ended on 10 December 100, it is possible that Caepio's quaestorship should be put a year later than is normal. If this were so, his coinage might fall as late as the end of 99.

the consuls of 96, whose mint-office can hardly lie much earlier than 120.[1]

2. *M. Iuni and An. Ruf.* (*Syd. 408 f.*)

The small Lacco Ameno hoard adds these two issues to the great block of denarii found in the Rome, Cani Islands, and West Sicily hoards. Between them and the end of the Riccia, Maserà, and S. Giovanni hoards there are some forty-eight more moneyers. These include many clear triumvirates and it is possible that at this period three moneyers were actually striking each year. Certainly Thomsen and Crawford do so arrange the coinage from issue no. 19 onwards with only one exception.[2] These forty-eight moneyers perhaps *need* not be spread over more than sixteen years. M. Junius Silanus and Annius Rufus could then have been moneyers as late as 135. Rufus would be the consul of 128, a senior moneyer like Scaurus, Aquillius, and Flaccus. Silanus could be the consul of 109.[3] L. Scipio Asiagenes (Syd. 576) was moneyer—shortly after Pulcher—some twenty-two years before his consulate in 83, while L. Metellus served at the mint c. 93/2 (Syd. 611) and reached the consulate only in 68. But this interval must be very near the limit.[4]

3. *M. Aureli Cota and C. Scr* (*Syd. 429 f. and 380 f.*)

Cotta's issue falls shortly after the two just considered—close to the retariffing of the denarius.[5] Now Münzer has already plausibly identified him with the father of C. Cotta (cos. 75).[6] Let us look at the facts. C. Cotta was born c. 124 and died shortly before his mother Rutilia, early in 73; L. Cotta his youngest brother was praetor in 70 and so born no later than 110. Rutilia was the daughter of P. Rutilius (trib. pleb. 169) and sister of P. Rutilius Rufus who seems to have been born c. 158. We should probably put her birth c. 150 with Münzer—even so she would be nearly eighty at death—and

[1] See *Agrinion Hoard* 123 ff. and 129 ff. (table). Thomsen and Crawford are right about the lion on the reverse of Cn. Dom: it is not one of King Bituitus' huge hounds!

[2] See Hersh's very useful hoard table in *NC* 1966, 80 ff. and *Agrinion Hoard* 127 ff.

[3] Grueber observed in a footnote that A/ RVF *could* be read as An(nius) Ruf(us). This was Borghesi's suggestion and Ernst Badian has convinced me that he was right. The ass-head symbol of M. Iuni is the punning type of a Silanus (Silenus).

[4] L. Metellus was praetor in 71, possibly over the minimum age. See *RE* iii, col. 1204 f. for his career.

[5] On present hoard evidence we can hardly hope to establish a precise order of issues between M. Iuni and Sex. Po(m) Fostlus (Syd. 461). See *NC* 1966, 76 ff. and *Agrinion Hoard* 127 f. and notes (some good observations).

[6] *Römische Adelsparteien* 323.

her marriage to M. Cotta perhaps a little before 130. Since her husband was a noble who never reached the consulate, he quite likely died at about the age of forty-five. This would put his birth c. 155 and his moneyership around 130.[1]

The moneyer C. Scr must clearly be a C. Scribonius and his issue may properly be dated a little less than a decade before Silanus and Rufus—thus on present reckoning in the late 140s.[2] In this context the moneyer will be C. Scribonius Curio, the contemporary of C. Gracchus and father of the consul of 76. This son was born c. 124 and was under fourteen at his father's death. The elder Curio—like M. Cotta—was never consul, which surprised Cicero in view of his great oratorical distinction and the fact that he survived well past the normal consular age. He was presumably born c. 165 and died about the age of fifty.[3]

Crawford puts the issue of C. Scr c. 165, at which date there is no ready identification for the moneyer.[4] Nor is this all. On his scheme we must reject the very tempting conjecture of Münzer and postulate a quite unknown M. Cotta instead. We must do the same with M. Silanus.[5] None of this is impossible, of course, in view of the complexities of Roman families and their nomenclature. But it is fair to ask whether the three issues really have to be pushed back to a point where such natural and satisfactory identifications are excluded.

Thomsen and Crawford want to date the retariffing of the denarius in the 140s, whereas I would put it somewhere between 135 and 130.[6] Crawford accepts Buttrey's view that the retariffing coincided with the change from reckoning in Asses to reckoning in sesterces, which is first publicly found in the *SC de Narthaciensibus* of c. 140.[7] What was Buttrey's proof that the As 'was the official unit of account at the time of the retariffing'? It lies in a very difficult passage of the

[1] See Münzer, op. cit. 320–7 and 401 ff. He makes the moneyer the younger brother of the consul of 119, which would clinch the matter. But this cannot be proved.

[2] See *Hoards . . .*, tables vii and ix. Perhaps fifteen issues intervene.

[3] See *RE* ii A, col. 861 f. and Cicero, *Brut.* 29. 110 and 32. 120 f. Curio was slightly older than M. Aemilius Scaurus (born c. 162: Ascon., pp. 19 f.) and P. Rutilius Rufus.

[4] See *AJA* 1968, 282 (dating the contemporary Nat-Syd. 382–c. 165). C. Scribonius, *praefectus socium* in 181 (Livy xl, 31. 3–5), would be too old to be moneyer in 165.

[5] There is no trace of any other M. Cotta after the legate of L. Scipio in 189 (Livy xxxvii, 52) nor of any other M. Silanus after the *praefectus socium* who died in 196 (Livy xxxiii, 35. 5). The M. Iunius D. f. tr(ib) pl(eb) of the *lex Repetundarum* (*CIL* i² 2. 583. 74) is most probably Silanus, the consul of 109. See Broughton, *Magistrates . . .* i, 513.

[6] See *Agrinion Hoard* 127, n. 32 and *Hoards. . . .*

[7] See *MN* 1957, 59–63. For the date of *SIG*³ 674 see Broughton, op. cit. ii, 643. The praetor was Mancinus, later consul in 137. The sum of 125 HS is earmarked for each embassy (lines 67–70). Compare the 120 HS (?) allocated similarly in 135 (*SIG*³ 688, 12 f.).

Elder Pliny (*NH* xxxiii, 45), which he interpreted as meaning that the soldiers stood to suffer a real reduction in pay at the retariffing and that this was offset by continuing to reckon it at 10 Asses to the denarius. The passage must be studied in its immediate context, which Buttrey unwisely ignored. This is how Pliny presents the matter: 'postea Hannibale urgente, Q. Fabio Maximo dictatore, asses unciales facti placuitque denarium xvi assibus permutari . . . in militari tamen stipendio semper denarius pro x assibus datus est.' Pliny wrongly believed that the retariffing fell in 217. But he was also uneasily aware of certain figures which Livy has transmitted from the early second century. Between 201 and 191 the following sums in Asses were paid by Roman generals as donatives to their troops at their triumph: 400, 120, 70, 80, 250, 270, and 125. From 189 to 167 such donatives are reckoned in denarii: 25, 25, 42, 50, 25, 15, 200, 100, 75, 45. On two occasions—in 181 and 179—no actual money was brought in and donatives of 300 Asses are recorded. There are no 16-As denarii here clearly. L. Scipio in 189 deliberately equalled Flamininus' generosity in 194 and doubled what Nasica paid in 191.[1] Pliny's only way of escape was to postulate that a special army rate—10 Asses to the denarius—was maintained long after 217. He would have done much better to reject 217 outright and we will do better to ignore his testimony.

Deprived of Pliny's support Buttrey's view must be treated strictly on its merits—as an ingenious, but far from proven thesis. It is permissible to think that the change in reckoning *preceded* the change of tariff—in the period of gradual adjustment to market realities that Buttrey rightly postulates. Cato records prices in sesterces in his *de Agricultura* (ch. 21 f.), which was completed in the 150s when the denarius was still certainly worth 10 Asses.[2] The passage relates to the Campanian markets and it is interesting to note that in the 140s sestertius reckoning may appear in Delos among the Italian (Campanian) trading community. A Delian inventory of 140 B.C. lists δηνάρια, δίνομα, and τροπαιόφορα. The latter is most naturally to be taken as a translation of *victoriati*. If this is so, δίνομα too must represent Roman coins, since the word appears immediately between denarii and victoriates. It presumably renders *quinarii*. The temple officials will have learned from the Italians that these were worth two

[1] For the detailed evidence see Thomsen, *Early Roman Coinage* i, 40 f. and 43 f. and add Livy xxxiv, 52. 11 (Flamininus).

[2] Mommsen indeed went further, adducing Cato (*Münzwesen*, 198). He thought that the practice of reckoning in sesterces or the like was deeply rooted in Roman Italy.

nummi or sestertii.[1] Private accountancy of farmers or merchants need not be any concern of the state. But it could well prove inconvenient to have two different systems in operation for any length of time together.[2] At the moment the earliest sure example of public use of sestertius reckoning is from c. 140. This may be a matter of chance. Indeed Frontinus *de Aqued.* i. 17 could reasonably be used to push the usage back to the mid 140s. According to Fenestella the Senate voted 18,000,000 *sesterces* in 144 to the praetor Q. Marcius Rex for the overhaul of the two existing aqueducts and the construction of a third. Now Fenestella was a very careful and well-informed Augustan scholar, who knew more about Italian/Numidian relations before 146 than modern critics always allow and who could give the exact details of the trial of the Vestals before the *pontifices* in 114. We should perhaps credit him with accuracy here.[3]

It looks as though public use of sestertius reckoning may have no direct connection with retariffing, but simply represent assimilation to the practice of the private sector.[4] If this possibility is once allowed, then 140 ceases to be a *terminus ante quem* for the new 16-As denarius. The identifications which I—and others—have proposed for certain moneyers will have to be seriously considered on their merits. For some denarii my dating can be tested by the objective criterion of an archaeological context. The Gallic stronghold of Entremont near Aix-en-Provence fell to the Romans in 124 and its fortifications were slighted. A few Roman denarii have been discovered over the years in the stratum contemporary with this violent occupation. The moneyers are Flavus, Ti. Vet, C. Serveili M. f., and C. Aug. I would put the last three c. 130–128.[5] It is worth noting

[1] See *Inscr. Del.* 1450 A 97 (cf. 1443 A col. i, 141 and 1449 A col. ii, 11 ff.) and L. Robert, *Études de Numismatique*, 1951, 159–69. Robert further suggested that νόμοι, δίνομα, and τετράνομα elsewhere in the inventories stand for sestertii, quinarii, and denarii. See on this the salutary scepticism of my father and E. S. G. Robinson in *Proc. Brit. Acad.* 1932, 217 f. The coins are probably Hieronic.

[2] Buttrey seems strangely to have forgotten Cato when he argued (op. cit. 64) that the Roman merchant could not forsake his historic allegiance to bronze before the State first retariffed and then changed its own mode of reckoning.

[3] On Fenestella see Schanz-Hosius, *Römische Literaturgeschichte* i, 103 and ii, 595 f.

[4] The *lex Voconia* of 169 defined the minimum census of the first class as 100,000 Asses, while the *lex Fannia* of 161 limited expenditure at feasts according to the same bronze reckoning. See *RE* iv A, col. 905 and ix A, col. 596 f. I would think that on present evidence we may put the change in public accounting *anywhere* between 160 and 145.

[5] See *Gallia* 1958, 414 and *Hoards* . . ., 145 for Ti. Vet (Syd. 527!), and his contemporary C. Aug. (Syd. 463). My information on the other two (Syd. 391 and 525!) came from Monsieur F. Benoît through Michael Crawford. I am grateful to them both.

that the Roman silver coins found in the communal grave at Alesia from 52 ended only three years before that date.[1]

4. *P. Blas, Varo, and Murena* (*Syd. 370, 364, and 373*)

Here, too, we have some objective evidence from archaeology, These three moneyers belong to a large group striking bronze only (Syd. 353–75), which is well represented in the camps round Numantia together with a similar one which Sydenham put too early (Syd. 292–301). Both groups are shown by the hoards to be earlier than C. Scr, Sar, and Nat (Syd. 381, 378, and 383).[2] Quadrantes of P. Blas and Varo were found in good condition in the third camp at Renieblas, which was established by Q. Fulvius Nobilior in 153. Though the camp was later the refuge for Mancinus' demoralized army in 137, we should provisionally reckon with 153 as the date when these two pieces were lost.[3] A specimen of the near-contemporary bronze of C. Sax (Syd. 360) was overstruck by the later of two issues with a star symbol, which Grueber and Sydenham failed to distinguish. A rather worn-looking As of the same issue was found in a Corinthian well amid a mass of debris from the destruction of 146.[4] This may all seem to recommend a date in the late 160s for C. Sax, P. Blas, and Varo.

In this context Murena must surely be L. Licinius Murena, a member of the ten-man commission which helped L. Mummius settle Greece in 146. He was the first man in his family to reach the praetorship.[5] One of his colleagues in 146 was A. Terentius Varro, whom it is now very tempting to identify with the moneyer Varo. His father was praetor in 184 and one of the commission that settled Macedonia in 167.[6] The younger Varro and Murena were presumably both praetors by 146, though more junior members of such commissions are attested.[7]

[1] See *Hoards* . . ., p. 146 and table xiii.

[2] See *Hoards* . . ., table ix and p. 144; E. J. Haeberlin, in A. Schulten, *Numantia* iv, 239 ff. and 342 f.

[3] *Numantia* iv, 241, nos. 126 f. and 170–81 (Schulten); Appian, *Iber.* 12. 82.

[4] For these facts see M. J. Price, *Hesp.* 1967, 354 and 362 with pl. 75. 19. For the second star issue see Crawford, *Hoards* . . ., table ix.

[5] Münzer (*RE* xiii, col. 444) identified him with the moneyer, dating the issue c. 151 at latest. For Murena's statue at Olympia see *Inscr. Olymp.* 321.

[6] For Varro's statue at Olympia see *Inscr. Olymp.* 324. For his father see Livy xxxix, 32. 4 and xlv, 17. 2–3.

[7] As for Illyria in 167: see the list in Broughton, op. cit. i, 435. Cicero once thought that C. Sempronius Tuditanus (cos. 129) was one of the 146 commission, but Atticus convinced him that it was the consul's father. See *ad Att.* xiii, 30. 2; 32. 3; 4. 1. For Tuditanus' statue see *Inscr. Olymp.* 323.

Who is the moneyer P. Blas? I believe that he must be the P. Cornelius C. f. Blasio who wrote as praetor to Corcyra a covering letter for a decree of the Roman Senate (*SEG* iii, 451). Corcyra was apparently being asked to arbitrate in a dispute between the Athamanes and the Ambraciots. Blasio's terse introduction matches almost word for word the similar covering letter sent to Mylasa by the praetor M. Aemilius M. f., requesting its arbitration between Magnesia and Priene (*SIG*³ 679)—as Holleaux acutely noted. Convinced, however, that P. Blasio was the senator active c. 170 (Livy xliii, 5, 7 and xlv, 13, 10–11) Holleaux wanted to put *both* documents c. 165, though the *SIG*³ dating for M. Aemilius was 143.[1] Holleaux was surely wrong in this. Pausanias, priest of Artemis Leukophryene (*SIG*³ 679, 30 and 97), was the son of the magistrate Euphemos who signed a spread tetradrachm issue of Magnesia. We now know that this coinage should be dated c. 165–155. Pausanias' own son Euphemos succeeded him in his priesthood and is attested for 112.[2] The praetor M. Aemilius must after all be Porcina, the consul of 137, and his letter can be dated only a few years previously.[3]

Does this mean that P. Blasio was also praetor c. 140? Formal considerations strongly recommend this. In *SEG* iii, 451 three senatorial witnesses to the decree are listed with their tribes, exactly as in the *SC de Narthaciensibus* (*SIG*³ 674: c. 140?) and the *SC de Prienensibus* (*SIG*³ 688: 135).[4] The earlier practice was to add the tribe *only* where it was essential to avoid confusion. It is found with only two of the fourteen names in the *SC de Bacchanalibus* (186), the *SC de Thisbensibus* (170), the *SC de Tiburtibus* (159?), and the *SC de Delo* (*SIG*³ 664).[5] A second criterion ties down *SEG* iii, 451 much more closely. It shares a strange grammatical trick with *SIG*³ 664 and 679. In all three the Latin phrase *scribendo adfuerunt* is rendered γραφομένου παρῆσαν—with a genitive for the expected dative. Now the editors put *SIG*³ 664 in the 160s, for no very good reason. A date shortly before 140 is much more likely, since its other odd spelling—εἰδυίοις in line 18—is paralleled only by the εἰδυίων of *SIG*³ 688 of 135. The praetor

[1] *BCH* 1924, 381 ff.; *SEG* iv, 508.

[2] For the coins see *BMC Ionia* 162, and pl. xviii. 9 (no. 36); M. Thompson, *Agrinion Hoard* 82 f. For the younger Euphemos see Margarita Guarducci, *Inscr. Cret.* iii, 4. 9, 2 and pp. 91 ff. (dating) and 103 (family).

[3] Frontinus *de Aqued.* i. 7 probably refers to M. Lepidus (cos. 158), not to Porcina as praetor in 143. But see Broughton's good discussion (op. cit. i, 473, n. 1).

[4] The stone tantalizingly breaks off just before the third witness's name in *SEG* iii, 451, but there can be little doubt that it *was* listed. For the date of *SIG*³ 674 see p. 99, n. 7.

[5] For texts of the first three see Riccobono, *Fontes Iuris Romani* i, 240, 243, and 248.

Q. Minucius Q. f. could well be the father of M. Minucius Q. f. Rufus, the consul of 110. His letter is presumably earlier than Porcina's, since the witnesses to the decree are still listed according to the old fashion—whereas in *SIG*³ 679, 39 both preserved names have the tribe added.[1]

P. Blasio, praetor in the late 140s, could well have been moneyer in the late 160s. On prosopographical grounds alone one could descend a decade later for him, as well as for Varo and Murena. The Numantia evidence certainly seems to favour the earlier context, but it is always possible that the pieces of Blasio and Varo—described as 'recht gut' and 'sehr gut' by Haeberlin—were lost in 137 rather than in 153.[2] For the moment I would turn to a group of three denarii which seem slightly earlier than Blasio. One of them is the oldest signed Roman coin in the Agrinion Hoard.

5. *L. Coil, Cn. Calp, and Cn. Do (Syd. 347 ff.)*

Mommsen identified Cn. Calp with the only Cn. Calpurnius known in the entire second century—the consul of 139, whose office as moneyer might fall as far back as c. 164.[3] All three denarii are so close in style and fabric as to appear the work of a single triumvirate. If Mommsen is right about Cn. Calpurnius Piso, then his further tentative identifications of L. Coil as the legate in Illyria in 170/69 and Cn. Do as Cn. Domitius Ahenobarbus (cos. 162) must clearly be abandoned. Since the Calvini apparently did not use the *praenomen* Cnaeus at this period, we should be forced to postulate an otherwise unknown cousin or nephew of the consul Ahenobarbus. I can see no great difficulty in this nor in identifying the moneyer as the son of the Illyrian legate.[4]

We have to make such assumptions anyway about the moneyers M. Titini, C. Sax, and A. Cae (Syd. 365, 360, and 355), whom Crawford ranges between Cn. Do and P. Blas.[5] An M. Titinius Curvus

[1] In *SIG*³ 664 (see editor's n. 10) Ti. Claudius has his tribe (*Crustumina*) added to avoid confusion with the Nerones (*Arnensis*). Is he Asellus, the tribune of 140? See on him Broughton, op. cit. i, 480. In *SIG*³ 679. 39 the second witness's tribe is either *Fabia* or *Falerna* (only *Φα*— survives).

[2] See Haeberlin in *Numantia* iv, 241, no. 126 f. The comparable Roman material from the Scipionic camps (of 134) is, however, in uniformly poor condition and no Renieblas piece even is described as 'exceptional' (*vorzüglich*).

[3] *Münzwesen* 499 f., no. 38.

[4] See Grueber, op. cit. i, 81, n. 3 and pl. xx. 4–6: Mommsen, op. cit. 509 and 500: Livy xliii, 21. 1–3 (L. Coilius). Note as another common feature that all three moneyers use an abbreviated form of their gentile name. Cn. Domitii Calvini were consuls in 332 and 283, then again in 53 (M. f. M. n.). M. Domitius P. f., envoy to Crete c. 115, was presumably grandfather of the consul of 53. See Broughton, op. cit. i, 537 f., n. 5.

[5] See *Hoards . . .*, table ix.

was tribune in 192 and praetor in 178, an A. Caecilius was plebeian aedile in 189, and C. Cluvius Saxula was praetor in 173, possibly for the second time. His first praetorship, if accepted, must be dated either 178 or 175.[1] None of these men, I think, can be identified with the moneyers on any defensible scheme of chronology. The names are all rare and the best solution is to make the moneyers the eldest sons of the magistrates, inheriting as so often the father's *praenomen*. They could hardly have been ready for mint-office before the 160s. Consistently with this an As of M. Titinius in only moderate condition was found in the third camp at Renieblas, having been lost either in 153 or 137.[2]

For Cn. Calp, P. Blas, Varo, and Murena I am here adopting the *earliest* dating consistent with the identifications which seem to me most probable. It perhaps also represents the *latest* dating consistent with the virtually universal belief that the denarius originated in 212.[3] The archaeological evidence from Morgantina *is* very strong and if this date stands there can be no identifying of the moneyer Cina (Syd. 368) with the consul of 127, the first known bearer of the name. He would hardly have been moneyer before c. 152, however slow his progress to the family's first consulate. His father was apparently a senator and could well have reached the lower offices.[4]

The signed denarii of the Agrinion hoard in my view would range from c. 165 to the late 120s. This dating is consistent with some good prosopographical evidence. It is also consistent with the archaeological evidence from Numantia, Corinth, and Entremont. It cannot be disproved simply by working down from the starting-point provided by Morgantina. We must surely use all the best available evidence for dating the later second-century denarii. Velleius, I am afraid, is not the best evidence. Nor is Pliny. He is right on the coinage only by accident and no sound theory can be built on him. I think that we must rather face squarely the challenge of the Agrinion Hoard—the association of FDC Roman denarii with worn Athenian tetradrachms of the 140s and early 130s and the fresh 'outliers' of ?132/1 and 129/8.

[1] See Broughton, op. cit. 362 and 397, nn. 4–6 for the detailed evidence and discussion: there seems to have been another M. Titinius among the praetors of 178.

[2] *Numantia* iv, 240, no. 105.

[3] In *Essays presented to Stanley Robinson*, 1968, 210 ff. I argued (perversely, many will think) that the denarius begins in 205. The difference of date anyway becomes minimal by the time that the coinage has progressed to the stage under discussion here.

[4] For Cinna (cos. 127) see *RE* iii, col. 1282, where the moneyer is reckoned an earlier member of the family.

THE ROMAN COIN-HOARD FROM TIMBERLAND (LINCS.): A REVISION

By MICHAEL DOLLEY *and* MALCOLM TODD

RECENTLY one of us drew attention to a neglected record of an early nineteenth-century discovery of a major hoard of Roman coins at Timberland in Kesteven in the following words:

> In 1808 a mass of about 1,500 bronze coins was unearthed near the village of Timberland, nine miles south-east of Lincoln. The coins were of the three emperors, Augustus, Tiberius and Claudius, and were reported to be in good condition.[1]

The authorities cited were the *Annual Register* for 1808, a not very promising source which was not available at the time of writing, and the 1934 *Archaeological Journal*, and it was further observed that the hoard is one that does not figure in Dr. C. H. V. Sutherland's still extraordinarily useful *Coinage and Currency in Roman Britain* which appeared, it is hard to realize, almost exactly thirty years ago.

Earlier reliance on the 1934 summary of the find was not quite as blind as the printed record in *NC* 1966 might have led one to suppose. It was backed up in fact by a reference to the Cragg MSS. in the Lincoln Archives Office, and it has come as something of a surprise to us to discover that so marginal a source as the early nineteenth-century *Annual Register* can throw new light on this shadowy find, and induce us in fact to revise the earlier estimate of its nature and significance. The full entry runs as follows:

> *Lincolnshire*—A considerable quantity, supposed to be about 14 or 15 hundred of small Roman copper coins were lately discovered at Timberland, near Sleaford, in a close of Mr. Ward, of that place. They were in a Roman earthen pot, which was broken by the plough, and are coins of Augustus, Tiberius, and the first Claudius: many of them are in fine preservation.[2]

We may begin by remarking one or two discrepancies between what we now believe to be the primary source and more recent interpretations. In the first place, it now appears that the coins were originally described as 'copper' and not 'bronze'. This could well be more

[1] *NC* 1966, 145. [2] *Annual Register* 1808, 155.

significant than may seem at first sight. The usual term of the period for Roman coins in the base metals was 'brass', and the use of the term 'copper' in the 1808 printed account must suggest not just that the report was drawn up by a non-numismatist but also that coins in *orichalcum* were absent. In other words, if the hoard really were of the first century, the only denominations present would be Asses and perhaps quadrantes as well, a composition that would make the hoard even more remarkable than it already is. In the second place, the figure of 1,500 is seen now to be an upper limit so that for Phillips's 'about 1,500' it might be preferable if there were substituted 'perhaps 1,500'. Thirdly, and not unimportantly, it is only 'many' of the coins and not the whole number that should be described as being 'well-preserved', i.e. legible.

Timberland, incidentally, is not particularly near Sleaford, the distance as the crow flies being some eight miles, but this does not seem a good reason for doubting the essential veracity of the 1808 report. The village, *pace NC* 1966, does not lie nine miles to the south-east of Lincoln but more like twelve. Much more to the point are two circumstantial details of the 1808 account which have failed completely to make their proper impact on modern scholarship as represented by the 1934 *Archaeological Journal*.[1] The first is the information that the coins struck the author of the 1808 account—or his informant—as being 'small'. If the hoard really were of first-century date, sestertii and dupondii would seem thereby excluded, and already we have seen that this absence is implied by the description of the coins as 'copper'. Once again, too, we are back at the improbability of a hoard composed exclusively of Asses and/or quadrantes, and it could even be argued that in an 1808 context the use of the adjective 'small' probably precludes the larger of these two denominations.

The second detail is one that acquires a new significance against the background of the controversy as a whole. It is stated that the hoard had been contained in 'a Roman earthen pot'. The singular should be stressed, as also the absence of comment upon its size. Allowing, of course, for the lighter Roman pound, a hoard of 1,500 sestertii of the first century of the Christian era would still have weighed not much less than a hundredweight, and the mind boggles at the early Romano-British jar that could have contained that amount of coin and then been shifted without fracture, while the dimensions of such

[1] *Arch. Jour.* 1934, 184.

a vessel would have been of such a magnitude that we might surely have expected some comment from our clearly not all that unobservant early nineteenth-century witness. As Mr. W. A. Seaby has been kind enough to remind us, the slightly later hoard of sestertii from Ham Hill appears to have required three pots of unusual size to cope with only marginally more than 1,000 coins.[1]

Already then, it may be thought that the first-century credentials of the Timberland hoard are more than a little dubious, and the suggestion now is made that rather less importance should henceforth attach to the comparatively few—relative to 1,500—unprovenanced pre-Claudian Asses and dupondii in the trays of the Lincoln Museum, now that the much more numerous sestertii and dupondii appear to be no longer relevant. More important still, it now appears that the all-critical identifications of the Timberland coins as 'of Augustus, Tiberius, and the first Claudius' go back to our early nineteenth-century chronicler, and so depend in very large measure upon his individual competence as an interpreter. What does not seem to have been sufficiently remarked in this connection is the apparent absence of coins of Caligula. Granted that the enduring imperial nickname is one that would not be found occurring on the coins of Gaius, the succession of the first four of the early Roman Emperors would surely have been sufficiently well known in educated circles in Georgian England for the local rector, squire, or doctor with the coins before him to have supplied the identification of that fourth emperor, third in the succession, whose coins cannot well have been absent in fact from any major find which really began with issues of Augustus and ended with those of Claudius. Indeed, it may be felt that there is evidence of polite familiarity with classical antiquity in the circumstance that our 1808 reporter was aware of the fact that there was more than one Roman emperor by the name of Claudius, and it might even be argued that it is precisely this reference to 'the first Claudius' which, far from clinching a first-century date, is a cause for suspicion that the 'small Roman copper coins' belong to a much later period. Once more to be stressed is the use of that word 'copper' instead of 'brass' which at the date of the hoard's discovery betrays the non-numismatist. This is not to say that the 1808 chronicler was unintelligent or unobservant, but niceties of attribution may fairly be supposed to have been beyond him, and without specialist expertise he may be thought likely to

[1] *NC* 1949, 172 and 179.

have plumped for the better-known in preference to the obscure and unfamiliar.

For the moment, though, let us suppose that the *Annual Register* account of the hoard contained no element of attribution and had omitted the words from 'and are coins of Augustus' down to 'the first Claudius'. Would any twentieth-century student ever have suspected a first-century date? Two suggestions would certainly have been canvassed, and it may well be that the field would have had to have been left open as between them. One hypothesis would have dwelt—very properly—upon the description 'small Roman copper coins', and gone on to argue that the hoard in all probability was of fourth-century date. Hoards composed of small copper coins of the Houses of Constantine and of Valentinian are reasonably abundant where north-eastern England is concerned, though, curiously, Dr. Sutherland in 1937 could list no such hoard from Lincolnshire itself. Only slightly less amenable to the epithets 'small' and 'copper' would be the debased antoniniani of the third quarter of the third century, coins so coppery that coroners have been known to decline to hold inquests upon them. Here again, too, hoards of the right period and size can be cited without difficulty, and, though once again no discovery from the county itself was listed by Dr. Sutherland, the last twenty years have thrown up two Lincolnshire finds which exactly meet the case, the massive hoards from Rigby and from Kirmington found in 1954 and 1961 respectively.[1] Each of these hoards contains very substantial numbers of coins on which the name of an Emperor Claudius is clearly legible, and even more pieces where the letters AVG(*ustus*) can be picked out without difficulty.

The novel suggestion of this note is that on the basis of the *Annual Register* account it is a perfectly reasonable hypothesis to suppose that the all-important 1808 eye-witness had seen a handful of coins from the find, silently extended AVG to give the name of the Emperor Augustus, recognized the name of an Emperor Claudius, and jumped to the conclusion that the hoard was a first-century one running from Augustus to Claudius I. So conditioned into acceptance of a first-century date, he then proceeded to read the name of the notorious Tiberius into the legend of one of the more illegible pieces, quite conceivably a wretched coin of Tetricus, a name which even today a quite respectable student of the classics might be pardoned for not recognizing. In this connection, Dr. J. P. C. Kent has been

[1] *JRS* 1954, 92: ibid. 1962, 167.

kind enough to inform us that he was once shown just such a debased antoninianus of the elder Tetricus on a London Underground train by an Irish labourer who assured him, that 'somebody who knew about these things' had told him that it was a coin of the Roman emperor who had crucified Christ. We do not think in all the circumstances that we are going beyond the evidence in claiming that the greater probability is that the 1808 *Annual Register*'s anonymous correspondent described with greater reliability than he interpreted. Admittedly we seem to be throwing overboard the identifications of somebody who it may be supposed had actually seen some of the coins, somebody who had stated in as many words that some of the pieces were of 'the first Claudius'. Against this it should be argued that there is a very real distinction between autopsy and knowledge, and that fallibility in this instance is so very much more plausible in the case of the latter. A man of intelligence ought to be able to recognize copper and to estimate relative magnitude, but he can be pardoned if he is not a master of numismatic nicety. Indeed, we can and should retort that we are at last giving to the 1808 account the weight which it deserves and which it was denied in 1934, for unlike our predecessors we do not brush aside, let alone ignore, the contemporary description of the coins as 'small' and 'copper', and the circumstance that they were discovered in a single 'earthen pot', while it is precisely these details which are so much more consistent with a third-century dating than a first-century one.

In *NC* 1966 it was already recognized that there was a curious disparity between the Timberland hoard with its '1,500 bronze coins' and the next largest recorded Claudian (i.e. Claudius I) hoard of bronze from Britain where the coins number no more than 'thirty'. Not enough, perhaps, was made of the fact that the Lincolnshire hoard comes from well outside the area where Claudian coins could be expected to have circulated at all extensively in that emperor's own lifetime. In this connection it is important to remember that single-finds as opposed to hoards tell us very little inasmuch as the issues concerned continued to circulate freely at least as late as the reign of Nero, and individual pieces might well have been lost at any time up to and including the end of the century—it is only hoards and not single-finds which provide a *terminus ante quem* as well as a *terminus post quem*. Possibly, too, not enough attention had been paid to the distribution of hoards as such—Dr. Sutherland knew no pre-Claudian hoard of bronze from north of the Wash, and the

position since has not materially altered. There is the further consideration that imitative pieces need not be strictly contemporary with their prototype.

On purely numismatic grounds, then, the first-century date hitherto accepted for the Timberland hoard must be set aside, a timely reminder of how numismatic science has progressed since 1934—and we hope that it will now be accepted practice for students of old hoard-reports to quote all early accounts, printed as well as unpublished. In this respect Dr. Michael Metcalf's medieval papers of a decade back were models of their kind, and we are convinced that the actual words of eighteenth- and nineteenth-century witnesses may contain hidden clues to the real nature of the discoveries that they must seem often to describe with, by modern standards, quite infuriating inadequacy. As long, however, as the Claudius I attributions held the field and appeared to accord with the findings of modern scholarship, it was scarcely possible to dispute them, and it may be thought that the 1934 summary erred seriously in that no hint was given there that the coins were 'small', of 'copper', and contained in a single 'earthen pot'.

BLETCHLEY TREASURE TROVE OF ROMAN IMPERIAL DENARII

By M. H. CRAWFORD

On 20 May 1967 a mechanical digger unearthed a hoard of 296 denarii at the junction of Watling Street and Galley Lane, Bow Brickhill (near Bletchley), Bucks. The contents of the hoard are as follows.[1]

[1] For each coin is given sequence number, brief description, and reference to E. A. Sydenham, *The Coinage of the Roman Republic* (London, 1952) or H. Mattingly and E. A. Sydenham, *The Roman Imperial Coinage* i–iii.

M. Antony		
1.	ANT AVG IIIVIR RPC/LEG VI	1223
2.	/LEG VIII	1225
3–9.	/LEG?	
Nero		
10–11.	NERO CAESAR AVGVSTVS/SALVS	52
12.	IMP NERO CAESAR AVGVSTVS/SALVS	53
Galba		
13.	IMP SER GALBA CAESAR AVG/DIVA AVGVSTA	4
Vitellius		
14.	A. VITELLIVS GERM IMP AVG TR P/CONCORDIA P R	2
15.	/LIBERTAS RESTITVTA	18
16.	/PONT MAXIM	20
17.	/XVVIR SACR FAC	24
Vespasian		
18.	IMP CAESAR VESPASIANVS AVG/COS ITER FORT RED	4
19–22.	/COS ITER TR POT Pax	10
23.	/IVDAEA	15
24.	IMP CAES VESP AVG P M/AVGVR PON MAX	29
25–6.	/TRI POT II COS III P P Pax	39
27.	IMP CAES VESP AVG P M COS IIII/AVGVR TRI POT	42
28.	/CONCORDIA AVGVSTI	43
29.	/VESTA	50
30.	IMP CAES VESP AVG CENS/PONTIF MAXIM Vespasian	65
31.	IMP CAES VESP AVG CEN/SALVS AVG	67
32.	IMP CAESAR VESPASIANVS AVG/PON MAX TR P COS V Caduceus	75
33.	Vespasian	77
34–8.	/PON MAX TR P COS VI Pax	90
39.	/COS VII Eagle	99
40.	/PON MAX TR P COS VII Pax	101

41.	CAESAR VESPASIANVS AVG/IMP XIX Sow	109
42–3.	/Modius	110
44–6.	IMP CAESAR VESPASIANVS AVG/IOVIS CVSTOS	124
47.	CAESAR VESPASIANVS AVG/ANNONA AVG	131
	Titus (as Caesar)	
48.	T. CAESAR IMP VESPASIANVS/COS VI Mars	195
49.	/TR POT VIII COS VII Trophy	208
50.	/IOVIS CVSTOS	211
51.	T. CAESAR VESPASIANVS/ANNONA AVG	218
52.	/IMP XIII Sow	220
	Domitian (as Caesar)	
53.	CAESAR AVG.F DOMITIANVS/COS IIII Pegasus	238
54.	/COS V Wolf	241
55–6.	/COS V Horseman	242
	Titus (as Augustus)	
57.	IMP TITVS CAES VESPASIAN AVG P M/TR P VIIII IMP XIIII COS VII P P Quadriga	12
58.	/TR P IX IMP XV COS VIII P P Elephant	22*a*
59.	/TR P IX IMP XV COS VIII P P Throne	24*a*
60.	/TR P IX IMP XV COS VIII P P Tripod	27
	Divus Vespasianus	
61.	DIVVS AVGVSTVS VESPASIANVS/SC Two capricorns	63
	Domitian (as Augustus)	
62.	IMP CAES DOMITIANVS AVG P M/COS VII DES VIII P P Thunderbolt on throne	13
63.	IMP CAES DIVI VESP. F DOMITIAN AVG P M/TR P COS VII DES VIII P P Anchor	Cf. 20
64.	IMP CAES DOMIT AVG GERM P M TR P VI/IMP XIIII COS XIII CENS P P P Minerva on prow	92
65.	IMP CAES DOMIT AVG GERMAN P M TR P VII/IMP XIIII COS XIIII CENS P P P Minerva with thunderbolt and spear	109
66.	IMP CAES DOMIT AVG GERM P M TR P VIII/IMP XIX COS XIIII CENS P P P Minerva on prow	138
67.	Minerva with spear	140
68.	Same titulature, but TR P VIIII, IMP XXI, COS XV Minerva with spear	150

Domitian (as Augustus) [*cont.*]		
69–70.	Same titulature, but TR P X Minerva with shield and javelin	152
71–2.	Minerva on prow	153
73–4.	Same titulature, but TR P XIII, IMP XXII, COS XVI Minerva with thunderbolt and spear	178
75.	Same titulature, but TR P XV, IMP XXII, COS XVII Minerva on prow	191
Nerva		
76.	IMP NERVA CAES AVG P M TR P COS II P P/CONCORDIA EXERCITVVM	2
77.	/FORTVNA AVGVST	4
78.	Same titulature, but COS III/FORTVNA AVGVST	16
79.	Same titulature, but TR P II/CONCORDIA EXERCITVVM	26
80.	/LIBERTAS PVBLICA	31
81.	/SALVS PVBLICA	Cf. 33
82–3.	IMP NERVA CAES AVG P M TR POT II/COS III PATER PATRIAE	34
84.	IMP NERVA CAES AVG GERM PM TR P II/IMP II COS IIII P P Fortuna	42
85.	Libertas	43
Trajan		
86.	IMP CAES NERVA TRAIAN AVG GERM/PONT MAX TR POT COS II Abundantia	11
87.	Concordia	12
88.	Pax	17
89.	/P M TR P COS III P P Pax	38
90.	Victory	41
91.	Same titulature, but COS IIII Victory	57
92–3.	Victory	59
94.	Victory	60
95.	Victory	64
96.	IMP NERVA TRAIANVS AVG GER DACICVS/P M TR P COS V P P Mars	80
97–8.	IMP TRAIANO AVG GER DAC P M TR P/COS V P P SPQR OPTIMO PRINC DAC CAP	98
99.	/COS V P P SPQR OPTIMO PRINC Roma	115
100–2.	Aequitas	Cf. 118
103–5.	Aequitas	119
106–8.	Fortuna	122
109.	Victory	128

110–11.		Victory	129
112–13.		Trophy	147*b*
114.	IMP TRAIANO AVG GER DAC P M TR P COS V P P/SPQR OPTIMO PRINCIPI	Genius	183
115.	(No aegis on obv.)	Pax	Cf. 190*a*
116.		Spes	191
117.		Dacia and trophy	223
118.	IMP TRAIANO AVG GER DAC P M TR P COS V DES VI/SPQR OPTIMO PRINCIPI—PAX		231
119.	IMP TRAIANO AVG GER DAC P M TR P COS VI P P/SPQR OPTIMO PRINCIPI ALIM ITAL		243
120–1.	/SPQR OPTIMO PRINCIPI	Mars	269
122.	IMP CAES NER TRAIAN OPTIM AVG GERM DAC/PARTHICO P M TR P COS VI P P SPQR	Mars	331
123–5.	IMP CAES NER TRAIANO OPTIMO AVG GER DAC/P M TR P COS VI P P SPQR	Felicitas	343
126.		Genius	347
127.		Virtus	355
128.		Trajan's column	356
129–30.	IMP CAES NER TRAIAN OPTIM AVG GERM DAC/PARTHICO P M TR P COS VI P P SPQR PROVID		361

Hadrian

131.	IMP CAES TRAIAN HADRIAN OPT AVG GER DAC/PARTHIC DIVI TRAIAN AVG.F P M TR P COS P P IVSTITIA		6
132.	IMP CAESAR TRAIAN HADRIANVS AVG/P M TR P COS II	FORT RED	41
133.		PAX	44
134.		PIETAS	45
135.		SALVS AVG	46
136–7.	Same titulature, but COS III	Mars	67
138.		Roma	78
139.		Aequitas	80
140.		Fortuna	85
141.		Pax	94
142.		Victory	101
143.		Galley	113
144.		AET AVG	114
145.		HILAR P R	126
146–7.		SAL AVG	137
148–9.	HADRIANVS AVGVSTVS/COS III	Roma	160
150.		Roma	161
151–2.		Roma	165

Hadrian [*cont.*]		
153.	Abundantia	169
154.	Genius	173
155.	Spes	181
156.	Star in crescent	200
157.	/COS III P P CLEMENT A AVG	207
158.	LIBERALITAS AVG	217
159.	PIETATI AVG	219
160. HADRIANVS AVG COS III P P/	ANNONA AVG	230
161.	/FELICITAS AVG	233
162.	/FELICITATI AVGVSTI	240
163.	/FIDES PVBLICA	241A
164.	/FORTVNA AVG	244
165.	/MONETA AVG	256
166–7.	/PIETAS AVG	257
168.	/PROVIDENTIA AVG	261
169–73.	/SALVS AVG	267
174–5.	/SALVS AVG	268
176.	/VICTORIA AVG	287
177–9.	/VOTA PVBLICA	290
180.	/AEGYPTOS	297
181.	/NILVS	310
182.	/RESTITVTORI HISPANIAE	326
183. HADRIANVS AVGVSTVS P P/COS III	Aequitas	339
184–6.	Victory	345
187.	/P M TR P COS III Aequitas	381
Sabina		
188. SABINA AVGVSTA/VENERI GENETRICI		396
189. SABINA AVGVSTA HADRIANI AVG P P/Vesta		413
Antoninus Pius (as Caesar)		
190. IMP T AEL CAES ANTONINVS/TRIB POT COS Pietas		452
Antoninus Pius (as Augustus)		
191. IMP T AEL CAES HADR ANTONINVS/AVG PIVS P M TR P COS II Pax		23

192.	ANTONINVS AVG PIVS P P/TR P COS II Clasped hands	43
193.	ANTONINVS AVG PIVS P P TR P COS III/AEQVITAS AVG	61
194.	/APOLLINI AVGVSTO	63B
195–7.	/CLEMENTIA AVG	64
198.	ANTONINVS AVG PIVS P P/TR POT COS III Clementia	84
199.	ANTONINVS AVG PIVS P P COS III/VIRTVS AVG	102
200.	ANTONINVS AVG PIVS P P/COS III DES IIII Pax	117
201.	Virtus	118
202.	/COS IIII Aequitas	127
203.	Clasped hands	136
204.	Thunderbolt on throne	137
205.	/TR POT COS IIII Liberalitas	150
206.	ANTONINVS AVG PIVS P P TR P XI/COS IIII Salus	167
207.	Same titulature, but TR P XII Aequitas	177
208.	Genius	180
209–10.	Salus	181
211.	Antoninus	183
212.	IMP CAES T AEL HADR ANTONINVS AVG PIVS P P/TR POT XIIII COS IIII PIETAS	201
213.	TRANQ	202
214.	ANTONINVS AVG PIVS P P TR P XVI/COS IIII Annona	221
215.	Same titulature, but TR P XVII Annona	231
216.	Same titulature, but TR P XVIII Vesta	238
217.	Annona	239
218.	ANTONINVS AVG PIVS P P IMP II/TR POT XIX COS IIII Annona	249
219–20.	Fortuna	251
221–3.	Same titulature, but TR POT XX Annona	262
224.	Same titulature, but TR POT XXI Annona	275
225.	Fortuna	277
226.	ANTONINVS AVG PIVS P P TR P XXIII/COS IIII FORTVNA	300
227.	PACI AVG	301
Diva Faustina		
228.	DIVA FAVSTINA/AETERNITAS Providentia	351
229.	/AVGVSTA Ceres	358
230.	Ceres	362
231.	Juno	363

Diva Faustina [*cont.*]

232.	Vesta	371
233.	Pietas	374
234.	Throne	377
235–7.	/CERES	378
238.	/CONSECRATIO Ceres	382*b*
239–41.	Peacock	384
242.	DIVA AVG FAVSTINA/PIETAS AVG Pietas	394
243.	/Ceres	404B

Antoninus Pius and Marcus Aurelius

244–5.	ANTONINVS AVG PIVS P P TR P COS III/AVRELIVS CAESAR AVG PII.F COS	417

M. Aurelius (as Caesar)

246–7.	AVRELIVS CAESAR AVG PII.F COS/PIETAS AVG	424
248–50.	AVRELIVS CAESAR AVG PII.F/COS II Honos	429
251.	/TR POT III COS II Minerva	444
252.	AVRELIVS CAESAR AVG PII.FIL/TR POT VIIII COS II Minerva	463
253.	AVRELIVS CAES ANTON AVG PII.F/TR POT XII COS II Felicitas	475
254.	(No column on rev.)	Cf. 475

Faustina II (under Antoninus Pius)

255–6.	FAVSTINA AVGVSTA/AVGVSTI PII.FIL Spes	497
257–9.	FAVSTINA AVG PII AVG.FIL/CONCORDIA Concordia	502
260.	FAVSTINA AVGVSTA AVG PII.F/PVDICITIA	508

Marcus Aurelius (as Augustus)

261.	IMP M AVREL ANTONINVS AVG/CONCORD AVG TR P XVI COS III	40
262–3.	IMP M ANTONINVS AVG/CONCORD AVG TR P XVII COS III	59
264.	ANTONINVS AVG ARMENIACVS/P M TR P XVIII IMP II COS III ARMEN	81
265.	M ANTONINVS AVG ARMENIACVS/VICT AVG TR P XX COS III	157
266.	M ANTONINVS AVG ARM PARTH MAX/TR P XXI IMP IIII COS III Providentia	170
267.	/FORT RED TR P XXII IMP V COS III	185
268.	M ANTONINVS AVG TR P XXIII/LIBERAL AVG V COS III	206

269.	M ANTONINVS AVG TR P XXIIII/COS III Salus	216
270.	Same titulature, but TR P XXV Jupiter	227
271.	IMP M ANTONINVS AVG TR P XXV/COS III Jupiter	228
272.	M ANTONINVS AVG TR P XXVI/IMP VI COS III Roma	259
273.	Same titulature, but TR P XXVII Trophy	280
274.	M ANTONINVS AVG GERM SARM/TR P XXXI IMP VIII COS III P P Victory	378
275.	Same titulature, but IMP VIIII Annona	383

Divus Antoninus

276.	DIVVS ANTONINVS/CONSECRATIO Pyre	438
277.	/DIVO PIO Altar	441

Lucius Verus

278.	IMP L AVREL VERVS AVG/PROV DEOR TR P II COS II	482
279.	IMP L VERVS AVG/PROV DEOR TR P II COS II	483
280.	L VERVS AVG ARMENIACVS/TR P IIII IMP II COS II ARMEN	509
281.	Mars	515
282.	L VERVS AVG ARM PARTH MAX/TR P VIII IMP V COS III Aequitas	595

Faustina II (under Marcus Aurelius)

283.	FAVSTINA AVGVSTA/CERES	669
284.	/FECUNDITAS	677
285.	/FORTVNAE MVLIEBRI	683
286.	/HILARITAS	Cf. 684

Diva Faustina

287.	DIVA FAVSTINA PIA/CONSECRATIO Peacock	744

Lucilla

288.	LVCILLAE AVG ANTONINI AVG F/CONCORDIA Concordia	757
289.	LVCILLA AVGVSTA/HILARITAS	769
290.	LVCILLAE AVG ANTONINI AVGF/VESTA	788
291.	VOTA PVBLICA	792

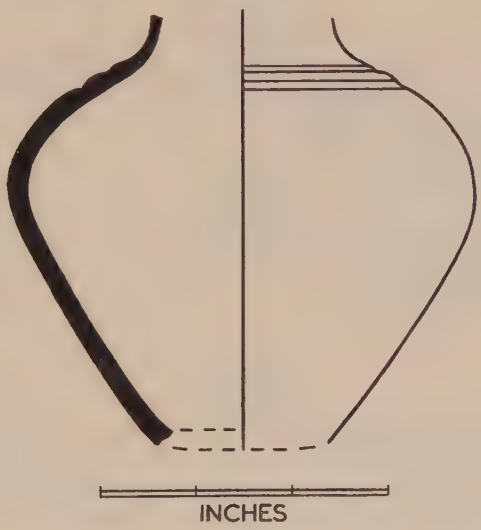
Commodus (as Augustus)			
292.	M COMMODVS ANTONINVS AVG/TR P VII IMP IIII COS II P P	Roma	26
293.		Providentia	32
294.	M COMMODVS ANTON AVG PIVS/TR P VIII IMP VI COS IIII P P	Salus	66
Crispina			
295.	CRISPINA AVGVSTA/CONCORDIA	Concordia	278
296.		Clasped hands	279

The latest dated coin, no. 294, is of A.D. 183. The condition of the coins ranges from worn to excellent, with a general tendency for early coins to be in poor condition, late coins to be in good condition. Nos. 40, 187, 252, 285, and 292 are in the British Museum, the remainder in the Buckinghamshire County Museum, Aylesbury.

ALCESTER (WARWICKSHIRE) FIND OF ROMAN ANTONINIANI AND SESTERTII

By R. A. G. CARSON

On 13 April 1967 two workmen digging a trench at the Oversley Mill caravan site, Alcester (O.S. Sheet 131 SP 088566), unearthed the fragments of a pot and a quantity of antoniniani and sestertii. From the finders' evidence it appears that the pot had already been shattered before it was dug up, and it seems clear that the two classes of coin had been hoarded together.



The find comprised ninety-five antoniniani of the period from Gordian III to Postumus, and fifty-one sestertii of the period from Trajan down to Postumus. The antoninianus portion of the hoard is unusual in that, although it terminates in the reign of Postumus, there are no coins of the sole reign of Gallienus. Usually in finds in Britain the antoniniani of the central empire are present as a series parallel to that of the Gallic empire. The bronze portion of the hoard has only four pieces later than Commodus—one Pertinax, one Julia Mamaea, and the two terminal sestertii of Postumus. The sestertii

up to and including those of Commodus, so worn and defaced that almost half the coins cannot be identified in detail, must have seen a great deal of circulation before they were hoarded. These two features, the comparative scarcity of bronze coinage after Commodus, and the continuation in circulation up to the 260s of sestertii, even when badly worn, are apparent in two further hoards of bronze coins which are now being studied with a view to publication in the next volume. One, from Gare, near Truro in Cornwall contains over 1,000 bronze coins; the other from near Northfleet in Kent consists of some 500 bronzes.

CATALOGUE

1. *Antoniniani*

GORDIAN III

Rome

	RIC		
IMP CAES M ANT GORDIANVS AUG			
PM TR P II COS P P Virtus	20	1	
IMP GORDIANVS PIVS FEL AVG			
LIBERALITAS AVG II	61	1	
VIRTVS AUG	71	1	
P M TR P IIII COS P P Apollo	88	1	
FELICITAS TEMPORVM	142	1	
PROVIDENT AVG	149	1	
		—	6

PHILIP II

Rome

IMP M IVL PHILIPPVS AVG			
AEQUITAS AVGG	27*b*	1	
SECVRIT ORBIS	48*b*	1	
IMP PHILIPPVS AVG			
TRANQVILLITAS AVG B|	9	1	
		—	3

PHILIP II

Rome

M IVL PHILIPPVS CAES			
PRINCIPI IVVENT	216*c*	1	
IMP PHILIPPVS AVG			
VIRTVS AVGG Γ|	223	1	
		—	2

TRAJAN DECIUS

Rome

	RIC		
IMP C M Q TRAIANVS DECIVS AVG			
ABVNDANTIA AVG	106	1	
PANNONIAE	26	1	
		—	2

TREBONIANUS GALLUS

Rome

IMP CAE C VIB TREB GALLVS AUG			
FELICITAS PVBLICA	34A	1	
LIBERTAS AVGG	37	1	
VICTORIA AVGG	48*a*	1	
Milan			
IMP C C VIB TREB GALLVS AVG			
PAX AETERNA	71	1	
		—	4

VOLUSIAN

Milan

IMP C C VIB VOLVSIANVS AVG			
VIRTVS AVGG	206	1	
		—	1

VALERIAN I

Cologne

VALERIANVS·P·F· AVG			
DEO VOLKANO	5	2	
ORIENS AVG (whip)	12	1	
„ „ (globe)	13	1	
Rome			
IMP C P LIC VALERIANVS AVG			
FIDES MILITVM	89	1	
VICTORIA AVGG	125	1	
VICTORIA AVGG	127	1	
Milan			
IMP VALERIANVS P AVG			
SALVS AVGG	253	1	
		—	8

GALLIENUS

Cologne

	RIC		
IMP GALLIENVS·P· AVG			
GERMANICVS MAX V	17	1	
GALLIENVS·P· F· AVG			
P M TR P VII COS IIII P P	8	2	
DEO MARTI	10	3	
GERMANICVS MAX V	18	2	
„ „ (*Obv.* bust l.)	18	1	
VICTORIA GERMANICA	51	3	
		—	12

SALONINA

Cologne

SALONINA AVG			
DEAE SEGETIAE	5	1	
VENVS FELIX	7	4	
		—	5

VALERIAN II

Cologne

VALERIANVS CAES			
IOVI CRESCENTI	3	2	

Rome

DIVO CAES VALERIANO			
CONSECRATIO Altar	24	1	
		—	3

SALONINUS

Cologne

SALON VALERIANVS CAES			
PIETAS AVG	9	2	
SPES PVBLICA	13	1	
		—	3

POSTUMUS

Cologne

	Elmer		
IMP C POSTVMVS P F AUG[1]			
HERC DEVSONIENSI	124	1	
VICTORIA AVG	125	2	

[1] Up to Elmer 333 the obverse inscription is generally punctuated IMP C POSTVMVS P·F· AVG.

	Elmer		
VIRTVS AVG	126	3	
P M TR P COS II P P	129	5	
LAETITIA AVG	130	1	
FIDES MILITVM	133	2	
HERC PACIFERO	299	8	
MINER FAVTR	313	1	
NEPTVNO REDVCI	314	2	
P M TR P IIII COS III P P	332	2	
PAX AVG	333	2	
MONETA AVG	336	10	
PROVIDENTIA AVG	337	1	
SERAPI COMITI AVG	382	3	
DIANAE LVCIFERAE	396	1	
SALVS POSTVMI AVG	414	1	
SAECVLI FELICITAS	593	1	
		—	46

2. *Sestertii*

TRAJAN

Revs. uncertain 4

HADRIAN

Revs. uncertain 6

ANTONINUS PIUS

RIC 766, 1000, 926, uncertain (7) 10

FAUSTINA I

Revs. uncertain 4

MARCUS AURELIUS

RIC 964, 1019, 1063, uncertain (6) 9

FAUSTINA II

RIC (Ant. Pius) 1578, *RIC* (M. Aurel.) 1653 2

LUCIUS VERUS

RIC 1456 1

LUCILLA

RIC 1755, 1756 2

	COMMODUS	
RIC (M. Aurel.) 1588, *RIC* 374, 469, 542, 614, uncertain (3)		8
	PERTINAX	
RIC 17		1
	JULIA MAMAEA	
RIC 676		1
	POSTUMUS	
RIC 208, 239		2
	CONTEMPORARY FORGERY	
Obv. Lucius Verus, *rev.* uncertain, weight 13·08 gm.		1
		— 51

A coroner's inquest on 25 May 1967 declared the silver portion of the find a treasure trove. The antoniniani and the pot (**Fig.** p. 123) have been acquired by the County Museum, Warwick. My thanks are due to Mr. S. Taylor who drew the pot, to Mr. B. Playle for the detailed information on the circumstances of the find, and to Mr. F. C. Davenport-Price for the opportunity of examining and listing the bronze coins.

MATTISHALL (NORFOLK) TREASURE TROVE OF ROMAN IMPERIAL SILVER COINS

By R. A. G. CARSON

On 18 January 1968, in the course of digging on a building site at Mattishall, near Norfolk (TG 04881115), a broken pot containing a hoard of Roman silver coins was discovered.[1] The hoard consisted of some 1,100 silver denarii and antoniniani: 1,095 were recovered intact and a further small number was broken while being extracted from the pot. The content of the hoard spans the period from Antoninus Pius to Postumus. Just as in the Alcester find (see p. 123, above) there are here no coins of the sole reign of Gallienus, but this is readily understandable for the latest coins are the three antoniniani of Postumus all from the first year of his reign.

The period spanned by this find saw the introduction of the antoninianus by Caracalla in A.D. 215, its cessation after the early issues of Elagabalus, its reintroduction in A.D. 238 by Balbinus and Pupienus with the consequent virtual disappearance of the denarius. This is yet another example of a find in which denarii and antoniniani were hoarded together[2] and presumably reflects their continued circulation together. It is difficult to see this happening if the antoninianus had an artificial value as a double-denarius and not its real weight relationship of $1\frac{1}{2}$ denarii.[3]

CATALOGUE

ANTONINUS PIUS

Rome

		RIC	
ANTONINVS AVG PIVS PP TR P XVIII	COS IIII Annona	239	1
„ „ „ IMP II	TR POT XX COS IIII Annona	262	1

[1] For a preliminary publication see Barbara Green and T. H. McK. Clough, 'The Mattishall hoard of Roman silver coins' in *Norfolk Archaeology* xxxiv, 3 (1968), 273 ff.

[2] *BMCRE* vi, 35 ff.

[3] R. A. G. Carson, 'The Inflation of the Third Century and its Influence in the Near East' in *Proceedings of the International Numismatic Convention* (Jerusalem, 1963), 234.

FAUSTINA I

Rome

		RIC	
DIVA FAVSTINA	AVGVSTA Ceres	360*a*	1

COMMODUS

Rome

M COMM ANT P FEL AVG BRIT	APOL MONET PM TR P XV COS VI	205	1

CLODIUS ALBINUS

Rome

D CLOD SEPT ALBIN CAES	MINER PACIF COS II	Cf. 7*a*	1

SEPTIMIUS SEVERUS

Rome

L SEPT SEV PERT AVG IMP IIII		
P M TR P II COS II PP Minerva	49	1
„ „ III „ „ Mars	52	1
L SEPT SEV PERT AVG IMP V		
P M TR P III COS II P P Mars	60	1
PART ARAB PART ADIAB COS II PP	63	1
L SEPT SEV PERT AVG IMP VII		
ARAB ADIAB COS II PP	64	3
P M TR P III „ Minerva	68	2
„ „ IIII „ „	71	1
L SEPT SEV PERT AVG IMP VIII		
FORTVNAE REDVCI	78*a*	2
INDVLGENTIA AVG	80	2
PM TR P IIII COS II PP Victory	86	1
„ „ „ V „ „ Genius	87	3
PROFECTIO AVG	91/106	1
SECVRITAS PUBLICA	93	2
VOTA PUBLICA	96*a*	1
L SEPT SEV PERT AVG IMP VIIII		
HERCVLI DEFENS	97	3
LIBERO PATRI	99	2
PM TR P V COS II PP Sol	101	1
„ „ „ Genius	105	3
MARTI PACIFERO	113	3
L SEPT SEV PERT AVG IMP X		
PM TR P V COS II PP Sol	115	1
„ „ VI „ „	117	2
PACI AETERNAE	118	3
„ AVGG	119A	2
VICT AVGG COS II PP	120C	5
L SEPT SEV PERT AVG IMP XI PART MAX		
COS II PP Victory	125*a*	1
FORTVNAE AVGG	126*a*	1
PROVID AVGG	139	1
VICTORIAE AVGG FEL	144*b*	1
SEVERVS AVG PART MAX		
RESTITVTOR VRBIS	167*a*	1

	RIC	
SEVERVS PIVS AVG		
PM TR P XIII COS III PP Jupiter	196	1
„ „ XV „ „ Africa	207	1
„ „ XVI „ „ Jupiter	216	1
„ „ XVIII „ „ Neptune	234	1
AFRICA	253	1
VICT PART MAX	295	1
Emesa		
IMP CAE L SEP SEV PERT AVG COS II		
FELICIT TEMPOR	373	1
FORTVN REDVC	383	2
INVICTO IMP	389	2
VICTOR AVG	425	1
VICTOR SEVER AVG	428	1
TR P III IMP V COS II	435	1
Laodicea		
L SEPT SEV PERT AVG IMP I		
LIBER AVG	442	1
L SEPT SEV PERT AVG IMP II		
BONA SPES	444	1
FORT REDVC	448	1
L SEPT SEVERVS PER AVG PM IMP XI		
VICT AVGG COS II PP	499	1

JULIA DOMNA

Rome

IVLIA DOMNA AVG		
VENER VICTOR	535	1
VESTA	538	1
IVLIA AVGVSTA		
DIANA LVCIFERA	548	2
FELICITAS	551	2
FORTVNAE FELICI	552	1
HILARITAS	556	1
HILARITAS	557	1
IVNO REGINA	560	3
PIETAS AVGG	572	1
VENVS FELIX	580	3
VESTAE SANCTAE	587	5
(In reign of Caracalla)		
IVLIA PIA FELIX AVG		
DIANA LVCIFERA	373A	2
VENVS GENETRIX	388*a*	1

CARACALLA

Rome

M AVR ANTONINVS CAES		
SEVERI AVG PII FIL	4	2
SPEI PERPETVAE	5	2
M AVR ANTON CAES PONTIF		
FIDES PVBLICA	8	1
IMPERII FELICITAS	9	3
MARTI VLTORI	11	2
PRINCIPI IVVENTVTIS	13*a*	2

	RIC	
IMP CAE M AVR ANT AVG P TR P		
MINER VICTRIX	25*b*	2
SPES PVBLICA	28	1
ANTONINVS AVGVSTVS		
RECTOR ORBIS	39*a*	1
RECTORI ORBIS	40	1
ANTONINVS PIVS AVG		
PONT TR P VI COS	69	1
PONTIF TR P VIII COS II	81	1
„ „ VIIII „	83*a*	1
„ „ X „	88	1
„ „ XI COS III	100	1
PONTIF TR P XI COS III PROF	108	1
ADVENTVS AVGG	120	1
FELICITAS AVGG	127	1
INDULGENTIA AVGG IN CARTH	130*a*	1
VOTA SVSCEPTA X	179	1
Laodicea		
M AVR ANTON CAES PONTIF		
SECVRITAS PERPETVA	330	1
(Sole reign)		
Rome		
ANTONINVS PIVS AVG BRIT		
P M TR P XVI COS IIII PP Serapis	208*a*	1
„ „ „ Libertas	209*a*	2
PROVIDENTIAE DEORVM	227	1
ANTONINVS PIVS FEL AVG		
MONETA AVG	236	1
P M TR P XVIII COS IIII PP Apollo	254	1
„ „ „ „ Sol	264*b*	1
ANTONINVS PIVS AVG GERM		
PM TR P XVIII COS IIII PP Serapis	280*c*	1
„ „ „ „	280*d*	1
VICT PART PM TR P XX COS IIII PP	299*d*	1
PLAUTILLA		
Rome		
PLAVTILLA AVGVSTA		
CONCORDIA AVGG	363*b*	1
GETA		
Rome		
L SEPTIMIVS GETA CAES		
FELICITAS TEMPOR	1	1
„ AVGG	8	8
P SEPT GETA CAES PONT		
NOBILITAS	13*a*	1
PRINC IVVENT	15*b*	1
„ IVVENTVTIS	18	1
SECVRIT IMPERII	20*a*	1
VICT AETERN	23	2
GETA CAES PONTIF COS		
VOTA PVBLICA	38*b*	2
P SEPTIMIVS GETA CAES		
PONTIF COS „	62*b*	1

	RIC	
IMP CAES P SEPT GETA PIVS AVG		
PONTIF TR P II COS II	70*b*	1
P SEPT GETA PIVS AVG BRIT		
LIBERALITAS AVG V	88	1

MACRINUS

Rome

IMP C M OPEL SEV MACRINVS AVG		
PONTIF MAX TR P PP Fides	3	1
" " " Securitas	24	1
VICT PART P M TR P II COS II PP	49	1
FELICITAS TEMPORVM	60	1
" "	63	1
SECVRITAS "	92	1

ELAGABALUS

Rome

IMP CAES M AVR ANTONINVS AVG		
P M TR P COS P P Roma	1	1
" " "	3	3
FIDES EXERCITVS	71	3
SALVS ANTONINI AVG	138	1
" " "	140	3
VICTOR ANTONINI AVG	156	2
IMP CAES ANTONINVS AVG		
FIDES EXERCITVS	68	1
MARS VICTOR	121	2
SALVS ANTONINI AVG	137	2
" " "	139	2
VICTOR ANTONINI AVG	152	2
" " "	153	4
IMP ANTONINVS AVG (with antoniniani)		
P M TR P II COS II PP Fortuna	18	1
" " " Providentia	23	1
FIDES MILITVM	73	1
IOVI CONSERVATORI	91	1
LAETITIA PVBL	94	1
" "	95	2
TEMPORVM FELICITAS	150	2
IMP ANTONINVS PIVS AVG		
PAX AVGVSTI	125	2
SECVRITAS SAECVLI	145	1
IMP ANTONINVS AVG (no antoniniani)		
P M TR P II COS II PP Pax	21	3
" " " Roma	16	2
ANNONA AVGVSTI	59	1
LIBERALITAS AVG II	102	2
LIBERTAS AVGVSTI	115	4
PROVID DEORVM	128	2
SALVS AVGVSTI	141	3
VICTORIA AVG	162	2
IMP ANTONINVS PIVS AVG *rev.* star in field		
P M TR P III COS III PP Sol	28	10
" " IIII " "	40	3
" " " " Providentia	42	9
" " " " " Victory	45	3

	RIC	
ABVDNANTIA AVG	56	11
FIDES MILITVM	78	8
LIBERALITAS AVG II	103	1
LIBERTAS AVG	107	2
,, ,,	111	1
VICTORIA AVG	161	12
IMP ANTONINVS PIVS AVG *obv.* horn, *rev.* star in field		
P M TR P IIII COS III P P Emperor	46	10
,, ,, V ,, ,,	52	2
INVICTVS SACERDOS AVG	88	16
SACERD DEI SOLIS ELAGAB	131	12
SVMMVS SACERDOS AVG	146	9

East

IMP ANTONINVS AVG		
CONSVL II PP	168	1
SPEI PERPETVAE	199	1
ANTONINVS PIVS FEL AVG		
CONCORDIA MILIT	187	1
SANCT DEO SOLI ELAGABAL	195	2

JULIA MAESA

Rome

IVLIA MAESA AVG		
FECVNDITAS AVG	249	4
IVNO	254	3
LAETITIA PVBL	261	1
PIETAS AVG	263	5
PVDICITIA	268	19
SAECVLI FELICITAS	271	13
,, ,,	272	4

JULIA SOAEMIAS

East

IVLIA SOAEMIAS AVG		
VENVS CAELESTIS	241	6
,, ,,	243	9

AQUILIA SEVERA

Rome

IVLIA AQUILIA SEVERA AVG		
CONCORDIA	225	2

JULIA PAULA

IVLIA PAVLA AVG		
CONCORDIA	211	11
,,	214	1

SEVERUS ALEXANDER

Rome

	RIC	
Accession Issue		
IMP C M AVR SEV ALEXAND AVG		
LIBERALITAS AVG	148	2
Issue 1		
IMP C M AVR SEV ALEXAND AVG		
P M TR P COS PP Jupiter	5	5
„ „ Mars	7	5
„ „ Libertas	11	5
„ „ Salus	14	4
IVLIA MAMAEA AVG		
IVNO CONSERVATRIX	343	15
Issue 2		
IMP C M AVR SEV ALEXAND AVG		
IOVI CONSERVATORI	141	7
LIBERTAS AVG	156	2
MARTI PACIFERO	160	2
SALVS PVBLICA	178	4
Issue 3		
IMP C M AVR SEV ALEXAND AVG		
P M TR P II COS PP Jupiter	19	8
„ „ Mars	23	9
„ „ Pax	27	7
„ „ Salus	32	8
PAX AETERNA AVG	165	1
PROVIDENTIA AVG	174	7
IVLIA MAMAEA AVG		
VENVS GENETRIX	355	1
Issue 4		
IMP C M AVR SEV ALEXAND AVG		
P M TR P III COS PP Jupiter	35	2
„ „ Mars	37	4
„ „ Pax	40	2
„ „ Salus	42	4
IVLIA MAMAEA AVG		
VENERI FELICI	350	1
Issue 5		
IMP C M AVR SEV ALEXAND AVG		
IOVI ULTORI	144	4
P M TR P IIII COS PP Mars	45	2
VICTORIA AVG	180	3
VIRTVS AVG	182	2

	RIC	
Marriage issue		
SALL BARBIA ORBIANA AVG		
CONCORDIA	319	1
Issue 6		
IMP C M AVR SEV ALEXAND AVG		
AEQVITAS AVG		
ANNONA AVG	133	8
PAX AVG	168	8
P M TR P V COS II PP Mars	53	3
„ „ Emp.	55	6
IVLIA MAMAEA AVG		
VESTA	360	15
Issue 7		
IMP C M AVR SEV ALEXAND AVG		
P M TR P VI COS II PP Mars	61	7
„ „ Aequitas	64	5
„ „ Annona	65	3
PM TR P VI COS II PP Pax.	67	11
„ „ Emp.	70	5
IVLIA MAMAEA AVG		
VESTA	362	1
Issue 8		
IMP C M AVR SEV ALEXAND AVG		
PM TR P VII COS II PP Mars	73	3
„ „ Aequitas	78	3
Issue 9		
IMP SEV ALEXAND AVG		
ANNONA AVG	187	2
PERPETVITATI AVG	208	2
PM TR P VII COS II PP Emp.	82	3
„ „ Mars	83	2
VIRTVS AVG	224	2
IVLIA MAMAEA AVG		
FELICITAS PVBLICA	335	4
Special issue		
IMP SEV ALEXAND AVG		
LIBERALITAS AVG IIII	205	1
P M TR P VIII COS III PP	95	2

	RIC	
Issue 10		
IMP SEV ALEXAND AVG		
ABVNDANTIA AVG	184	5
ANNONA AVG	190	4
P M TR P VIII COS III PP		
Mars	91	1
„	92	6
Annona	94	1
Emp.	97	3
Issue 11		
IMP SEV ALEXAND AVG		
P M TR P V IIII COS III PP		
Sol	102	2
Emp.	105	2
VICTORIA AVGVSTI	219	1
VIRTVS AVG	221	4
„	226	3
IVLIA MAMAEA AVG		
FELICITAS PVBLICA	338	3
Issue 12		
IMP SEV ALEXAND AVG		
IOVI CONSERVATORI	200	2
VICTORIA AVG	212	1
VIRTVS AVG	220	2
IVLIA MAMAEA AVG		
VENVS VICTRIX	358	1
Issue 13A		
IMP SEV ALEXAND AVG		
VICTORIA AVG	210	2
IVLIA MAMAEA AVG		
IVNO AVGVSTAE	341	3
Issue 1		
IMP SEV ALEXAND AVG		
P M TR P COS PP Fortuna	263	1
AEQUITAS AVG	274	1
Issue 2		
IMP C M AVR SEV ALEXAND AVG		

	RIC	
Issue 13B		
IMP ALEXANDER PIVS AVG		
PM TR P X COS III PP Sol	108	2
Issue 14		
IMP ALEXANDER PIVS AVG		
IOVI PROPVGNATORI	235	3
PROVIDENTIA AVG	252	1
Issue 15		
IMP ALEXANDER PIVS AVG		
IOVI PROPVGNATORI	238	3
MARS VLTOR	246	8
P M TR P XI COS III PP		
Sol	120	1
PROVIDENTIA AVG	250	6
SPES PVBLICA	254	6
IVLIA MAMAEA AVG		
FECVND AVGVSTAE	331	9
Issue 17		
IMP ALEXANDER PIVS AVG		
P M TR P XIII COS II PP		
Sol	123	3
Hybrid		
IMP SEV ALEXAND AVG		
PROVIDENTIA AVG	Cf. 252	1
Contemporary forgery		
IMP ALEXANDER PIVS AVG		
bust rad., dr., cuir., r.		
MARS VLTOR	Cf. 246	1
East		
P M TR P COS PP Fortuna	267	1
VICTORIA AVG	302	2
Issue 4		
IMP C M AVR SEV ALEXAND AVG		
CONCORDIA	275	2
PIETAS AVG	292	2
PROVID DEORVM	294	2

MAXIMINUS

Rome

Issue 1		
IMP MAXIMINVS PIVS AVG		
FIDES MILITVM	7A	3
PAX AVGVSTI	12	7
P M TR P PP	1	4
PROVIDENTIA AVG	13	3
SALVS AVGVSTI	14	3
VICTORIA AVG	16	3
Issue 3		
MAXIMINVS PIVS AVG GERM		
FIDES MILITVM	18	1
PAX AVGVSTI	19	1
PROVIDENTIA AVG	20	3
SALVS AVGVSTI	21	1

GORDIAN II

Rome

	RIC			*RIC*	
IMP M ANT GORDIANVS AFR AVG			PROVIDENTIA AVG	1	1

BALBINUS AND PUPIENUS

Rome

IMP C D CAEL BALBINVS AVG			IMP C M CLOD PVPIENVS AVG		
VICTORIA AVG	8	1	PAX PVBLICA	4	1
IMP CAES D CAEL BALBINVS AVG					
CONCORDIA AVG	10	2			

GORDIAN III

Rome

Issue 1			*Issue 2*		
IMP CAES M ANT GORDIANVS AVG					
FIDES MILITVM	1	3	P M TR P II COS PP Jupiter and Emp.	16	2
PAX AVGVSTI	3	1	„ „ Pax	17	1
PROVIDENTIA AVG	4	3			
VICTORIA AVG	5	1			
VIRTVS AVG	6	4			

Issue 3a			*Issue 3b*		
Obv. As issue 1			IMP CAES GORDIANVS PIVS AVG		
AEQVITAS AVG	34	3	LIBERALITAS AVG II	53	2
CONCORDIA AVG	35	3			
LIBERALITAS AVG II	36	2			
P M TR P II COS PP	37	3			
ROMAE AETERNAE	38	3			
VIRTVS AVG	39	3			

IMP GORDIANVS PIVS FEL AVG

Issue 3c

AEQVITAS AVG	63	2
CONCORDIA MILIT	65	2
LIBERALITAS AVG III	67	4
P M TR III COS PP	69	2
ROMAE AETERNAE	70	3
VIRTVS AUG	71	3

Issue 4			*Issue 5*		
AETERNITATI AVG	83	9	MARTEM PROPVGNATOREM	147	1
FORT REDVX	143	3	P M TR P V COS II PP Apollo	89	2
FORTVNA REDUX	144	3	SECVRITAS PERPETVA	153	1
IOVI STATORI	84	7	VICTORIA AETERNA	156	3
IOVIS STATOR	88	5			
LAETITIA AVG N	86	13			
P M TR P III COS II PP Apollo	87	1	*Marriage Issue* (denarii)		
„ „ IIII „	88	5	PIETAS AUGVSTI	129	1
„ „ III „ Emp.	91	2	SALVS AVGVSTI	129A	1
„ „ IIII „	92	4	VENVS VICTRIX	131	1
VIRTVTI AUGUSTI	95	10			
LAETITIA AVG N (denarius)	113	1			
P M TR P III COS II PP (denarius)	114	1			

Issue 6

	RIC	
P M TR P VI COS II PP Emp.	94	1
SECVRIT PERPET	152	1
VICTOR AETER	154	1

Issue 7

	RIC	
FELICIT TEMP	140	3
MARS PROPVG	145	2
PROVID AVG	148	2
SECVRIT PERP	151	9

East

IMP GORDIANVS PIVS FEL AVG

FORTUNA REDUX	210	2
ORIENS AVG	213	4
PAX AVGVSTI	214	1
P M TR P VII COS II PP	207	1
SAECVLI FELICITAS	216	2

PHILIP I

Rome

Issue 1

IMP M IVL PHILIPPVS AVG

FIDES MILIT	32*b*	2
LAETIT FUNDAT	37*b*	1
PAX AETERN	41	1
SALUS AVG	46*b*	5
VICTORIA AVG	50	2
VIRTVS AVG	52	2
„ „	53	1

Issue 2

IMP M IVL PHILIPPVS AVG

ADVENTVS AVGG	26*b*	1
FELICITAS TEMP	31	3
LIBERALITAS AVGG II	38*b*	1
SECURIT ORBIS	48*b*	3

M IVL PHILIPPVS CAES

PIETAS AVGVSTOR	215	1
PRINCIPI IVVENT	216*c*	2

Issue 3

IMP M IVL PHILIPPVS AVG

AEQVITAS AVGG	27*b*	7
ANNONA AVGG	28*c*	4
P M TR II COS PP	2*b*	2
„ „ III „	3	5
„ „ III COS II PP	4	5
ROMAE AETERNAE	44*b*	8
„ „	45	1

M OTACIL SEVERA AVG

CONCORDIA AVGG	125*c*	5
„ „	126	3

Issue 4

IMP PHILIPPVS AVG

AEQVITAS AVGG	57	4
ANNONA AVGG	59	2

OTACIL SEVERA AVG

CONCORDIA AVGG	129	2

IMP M IVL PHILPPVS AUG (Philip II)

AETERNIT IMPER	226	1

Issue 5

IMP PHILIPPVS AVG

SAECVLARES AVGG		
lion, in ex. I	12	2
wolf, in ex. II	15	1
stag, in ex. V	19	1

Issue 6

IMP PHILIPPVS AVG (Philip II)

VIRTVS AVGG	223	1

Issue 7

IMP PHILIPPVS AVG

AETERNITAS AVGG	58	2
FIDES EXERCITVS	62	5
SAECVLARES AVGG	24*c*	2
SAECVLUM NOVVM	25*b*	1

OTACIL SEVERA AVG

PIETAS AVGVSTAE	130	2

IMP PHILIPPVS AVG (Philip II)

LIBERALITAS AVGG III	230	2
PAX AETERNA	231*c*	1

East

IMP C M IVL PHILPPVS P F AVG

PAX FVNDATA CVM PERSIS	69	1
SPES FELICITATIS ORBIS	70	1

M OTACIL SEVERA AVG

IVNO CONSERVAT	127	1

TRAJAN DECIVS

Rome

	RIC	
Issue 1		
IMP TRAIANVS DECIVS AVG		
ADVENTVS AVG	1*b*	1
VICTORIA AVG	7*c*	1
Issue 2		
IMP C M Q TRAIANVS DECIVS AVG		
ADVENTVS AVG	11*b*	2
GENIVS EXERC ILLURICANI	16*c*	2
HER ETRVSCILLA AVG		
PVDICITIA AVG	59*b*	4
Issue 3		
IMP C M Q TRAIANVS DECIVS AVG		
PANNONIAE	21*b*	1
VBERITAS AVG	28*b*	1
HER ETRVSCILLA AVG		
FECVNDITAS AVG	55*b*	2
Q HER ETR MES DECIVS NOB C		
PRINCIPI IVVENTVTIS	146	1
„ „	147*c*	2
Issue 4		
HER ETRVSCILLA AVG		
IVNO REGINA	57	1
Q HER ETR MES DECIVS NOB C		
CONCORDIA AVGG	138	1

Milan

IMP CAE TRA DEC AVG		
DACIA	36*a*	1
GEN ILLVRICI	38	a
PANNONIAE	41	1

DIVI

DIVO MARCO		
CONSECRATIO	92*b*	1

TREBONIANUS GALLUS AND VOLUSIAN

Rome

IMP CAE C VIB TREB GALLVS AVG		
APOLL SALVTARI	32	1
FELICITAS PVBLICA	34	2
LIBERTAS AVGG	37	3
SALVS AVGG	46*a*	1
IMP CAE C VIB VOLVSIANO AUG		
PAX AVGG	179	1
SALVS AVGG	184	1
VIRTVS AVGG	187	1

Milan

IMP C C VIB TREB GALLVS AVG		
LIBERTAS PVBLICA	70	3
PAX AETERNA	71	1
IMP C C VIB VOLVSIANUS AVG		
FELICIT PVBL	205	1
VIRTVS AVGG	206	1

AEMILIAN

Rome

IMP CAES AEMILIANVS P F AVG	ERCVL VICTORI	p. 196, no. 31

VALERIAN AND GALLIENUS

Cologne

	RIC				
VALERIANVS·P·F·AVG			GALLIENUS·P·F·AUG		
ORIENS AVGG	12	3	DEO MARTI	10	1
SALONINA AVG			GERMANICVS MAX V	18	5
VENVS FELIX	7	1	RESTIT GALLIAR	29	1
VALERIANUS CAES			VICT GERMANICA	42	3
IOVI CRESCENTI	3	1	VIRTVS AVGG	56	1
SALON VALERIANUS CAES					
PIETAS AVG	9	1			

Rome

IMP C P LIC VALERIANUS AVG			IMP C P LIC GALLIENVS AVG		
APOLINI PROPVG	74	1	CONCORDIA AVGG	131	1
FELICITAS AVGG	86	1	IOVI CONSERVA	143	1
FIDES MILITVM	89	1	LAETITIA AVGG	144	1
IOVI CONSERVA	92	1	VIRTVS AVGG	181	2
VICTORIA AVGG	124	1			
SALONINA AVG			P C L VALERIANVS NOB CAES		
VENVS VICTRIX	67	1	CONSECRATIO	25	1

Milan

IMP GALLIENVS AVG			SALVS AVGG	397	1

POSTUMUS

Cologne

IMP C POSTUMUS·P·F·AVG		
P M TR P COS II PP	54	1
HERC DEVSONIENSI	64	1
LAETITIA AVG	73	1

From the find which was declared a treasure trove only fifteen coins were retained by the British Museum; the remainder was acquired by the Castle Museum, Norwich. The pot (**Figs. 1** and **2**) which was also acquired by Norwich Museum is described by Barbara Green as follows:

'Only the lower part of the jar which contained the hoard survives, the neck and rim being missing. This is 4·5 inches high; when complete the jar was probably 6·5 inches high. The grey fabric is hard and slightly sandy; it is well fired. The body of the vessel was originally burnished black. The jar is decorated with two shallow, horizontal grooves above the maximum diameter. The form and fabric are similar to other third-century-A.D. vessels from Norfolk, but the absence of the neck and rim makes accurate dating and comparisons impossible.'

FIG. 1.

FIG. 2.

The forgery of a coin of Severus Alexander (p. 136 above) is worthy of remark. The denarii of the later issues of this emperor often have, for the period, an unusually spread flan. On one of such coins the forger, by carefully re-cutting the obverse portrait to show the emperor with radiate crown, has created an 'antoninianus'.[1] The coin to be transformed was well selected metrologically, for its weight, 3·53 gm., is as good as that of many of the later antoniniani in the hoard. Though the average weight of the 365 denarii of Severus Alexander in the British Museum collection is only 2·84 gm., the frequency table contains 17 denarii in the range 3·50–3·65 gm.[2] That this was a successful forgery is clear from its inclusion in the hoard.

I am particularly grateful to the staff of the Castle Museum, Norwich, both for the most efficient cleaning of the coins and for the preliminary identification of the pieces. In further work on this find I had the assistance of the following students from Royal Holloway College: Janice Chambers, Mary Dibble, Monica Janes, Caroline Jones, and Diana Randall. Their help is most gratefully acknowledged.

[1] See R. A. G. Carson, 'Alleged antoniniari of Severus Alexander' in *NC* 1955, 230 f.

[2] *BMCRE* vi, 16–17.

WELWYN TREASURE TROVE OF ROMAN IMPERIAL DENARII

By R. A. G. CARSON

On 19 September 1961 a small hoard of third-century Roman coins was dug up at 22 Glebe Road, Welwyn, Herts. The original find consisted of 117 coins but subsequent search produced a further 33 pieces. With the exception of two silver denarii of both Septimius Severus and Severus Alexander and a small silver coin of Julia Domna, issued at Caesarea in Cappadocia, the find was made up of silver or silver-washed antoniniani. A single bronze coin of Constantine II picked up at the same time is an intruder in the hoard. A pot of hard, grey, unburnished ware which formed the container for the hoard was broken on finding.

The coins are listed below with reference to the appropriate volume of *Roman Imperial Coinage*, except for the Gallic Empire, where the references are to Elmer, *Die Münzprägung der gallischen Kaiser*:

Septimius Severus: 85, 219	2
Julia Domna: *BMC Cappadocia*, Caesarea, no. 258	1
Severus Alexander: 32, 123	2
Gordian III: 1, 2, 34, 36, 87, 88 (2), 92, 143, 145, 151	11
Philip I: 27*b*, 58	2
Otacilia Severa: 123c	1
Valerian I: East 286	1
Valerian II: Cologne 3	1
Saloninus: Cologne 9	1
Gallienus (*joint reign*): Cologne 10, 44, 49; *Rome* 175; *Milan* 359, 380	6
Gallienus (*sole reign*): Rome 164 K $\frac{\vert}{Z}$, 181 K $\frac{\vert}{XI}$, 192 $\frac{\vert}{T}$, 193 but 8 K $\underline{\vert S}$, 221 K $\underline{S\vert}$, 226 F, 236 K $\underline{H\vert}$, 245 K $\frac{\vert}{N}$ (3), 249 K $\underline{Z\vert}$, 280 K $\underline{\vert H}$, 320 K, 331 but 8 K $\underline{X\vert}$, uncert. rev.; Milan 460 $\frac{\vert}{MP}$, 498 K $\frac{\vert}{P}$, 508 $\frac{\vert}{MP}$	18
Salonina (*sole reign of Gallienus*): Rome 5 $\underline{\vert \Delta}$	1
Claudius II: Rome 19 K $\underline{\vert \Delta}$, 20 K $\frac{\vert}{H}$, 92 K $\underline{\vert \varsigma}$, 100 K $\underline{\vert X}$; Milan 168 $\frac{\vert}{P}$	5

Quintillus: Rome 31 |XI (2) 2

Gallic Empire

Postumus: Cologne 124 (3), 125 (2), 126 (2), 129 (8), 133, 299 (2), 335 (3), 336 (6), 382 (4), 413, 415, 562, 564 (2), 566 (6), 570, 586 (3), 593, 597; Milan 614 $\frac{|}{T}$ 48

Victorinus Cologne 648 (2), 651 (12), 653 (12), 697, 698, 699 (2); Trier 733 (8), 741 (7), 743 (2) 47

Total 149

In its pattern and range of contents this hoard is a fairly typical example of a British hoard of antoniniani of the later third century. Admittedly the majority of such hoards include coins of Quintillus and early Aurelian, of the Tetrici in Gaul, as well as a representation of the coinage reformed by Aurelian, while the present hoard stops short at Claudius II and Victorinus, but such a hoard though less common, does form a recognized, if smaller, class.

The pot and its contents in their entirety have been acquired by the Verulamium Museum.

THE NADIR OF THE IMPERIAL ANTONINIANUS IN THE REIGN OF CLAUDIUS II GOTHICUS, A.D. 268–270

By LAWRENCE H. COPE

THE earliest antoniniani,[1] minted in a substantially debased silver alloy,[2] have, nevertheless, the outward appearance of a much finer silver coinage.[3] Within a few decades, however, following further drastic debasements[4] of the Roman silver coinage, all semblance of a silvery appearance was lost during the sole reign of the emperor Gallienus. The visible decline in the fineness and in the technical quality of execution[5] of antoniniani minted between A.D. 259 and 268, and the known cumulative severity[6] of the series of debasements

[1] Introduced by Caracalla, in A.D. 214, as multiple-denarii. They have one and a half times the weight of their contemporary denarii, and were minted in an alloy of the same fineness (cf. n. 2). Antoniniani are generally regarded as double-denarii, but they might have originated as 1½*d.* pieces.

[2] A copper–silver alloy having a nominal fineness of 444 parts of silver per mille; prepared by melting 15 unciae of copper with each libra of refined silver (cf. the author, 'Roman Imperial Silver Coinage Alloy Standards: the evidence', *NC* 1967, 171).

[3] The interior of the coinage is of a pale golden-yellow colour which tarnishes to a dull brassy yellow. The reheating processes to which the blanks were subject before final striking caused preferential oxidation of the base metal component, at the surface, and a consequent enrichment in silver. Removal of the copper oxides in dilute acid (such as vinegar) would have left a bright silver coating despite the considerable debasement of the alloy as a whole. All early antoniniani possess such a silver-rich skin.

[4] Some 700 assays of antoniniani minted between A.D. 214 and 274 (P. Le Gentilhomme, 'Variations du titre de l'antoninianus au III[e] siècle', *RN* 1962.), reveal the progress in the debasement of this coinage from Caracalla to Gallienus and the Gallic emperors.

[5] Thus, A. M. H. Jones, *The Later Roman Empire*, describes the appearance of the Gallienic antoniniani as '. . . not only short weight and vilely minted . . . but virtually copper . . .'.

Technically, however, the term 'copper' applies strictly only to the most debased antoniniani of the last three Gallic emperors; the contemporaneous antoniniani of the legitimate emperors can be shown to have been minted in argentiferous leaded tin-bronzes containing substantial proportions of base alloy (cf. analyses given in this work and results yet to be published on the compositions of the alloys of the Gallic antoniniani). Many of the imperial pieces have radial cracks and multiple edge-cracks due to the brittle nature of the alloys which were in use at this time.

[6] S. Bolin, *State and Currency in the Roman Empire to 300 A.D.*, speaks of a tenfold reduction in intrinsic worth. My own comparisons of the fineness standards which appear to have been in use at the beginning and at the end of the sole reign of Gallienus indicate that in a number of descents the fineness of the alloy was reduced from 2 unciae per libra to only 6 scrupula per libra. This reveals the cumulative effect of the debasements to have been precisely an eightfold reduction in the intrinsic worth of the coinage alloy; to this it is necessary to add the effects of weight-reductions in order to arrive at an intrinsic worth comparison of the actual pieces.

effected by Gallienus, have tended to create the impression that it was he who was responsible for the final descent to the absolute nadir in fineness; and, in ignorance of the metallic composition of later issues of bronze-looking antoniniani, he is often blamed for it.

There can be little doubt that a succession of catastrophic policies and disastrous events in the joint reign of Valerian and Gallienus, and in the sole reign of Gallienus, was fundamental to the ultimate decline of the antoninianus alloy; but no less than twenty coin assays, performed for Le Gentilhomme,[1] have revealed that even the final and most debased substantive issue of antoniniani for Gallienus[2] was minted in metal possessing a fineness standard which equates with the addition of six scrupula of silver to each libra melt of bronze base.[3] Two other recent assays[4] support this conclusion. Furthermore it can now be shown that significantly lower fineness standards,[5] corresponding also with metallurgically inferior coinage alloys, were, in reality, brought into use in the following reign—that of Claudius II.

Superficially there is much similarity in the material, and in the fabric, of the poorest antoniniani of Gallienus and those of his three immediate successors; Claudius II Gothicus, Quintillus, and Aurelian.[6] The coins reveal no obvious external evidence of further decline —after Gallienus—nor of recovery, until the emergence of the slightly superior proto-reform[7] coinage of Aurelian. Unfortunately, in the past, there has been a dearth of assays of imperial coins upon which to base a more objective judgement. In contrast, the plentiful contemporaneous antoniniani of the last Gallic emperors[8] have been

[1] P. Le Gentilhomme, op. cit. 154 and 155.

[2] The series of animal-type reverses from the twelve officinal A–XII (Voetter's designated 'seventh' issue).

[3] The author, op. cit. 169 and Table II. The actual fineness standard is a nominal 20·8 parts per mille. The twenty assays, for Le Gentilhomme, of the coinage of A.D. 266–8, range from 18 to 29 parts per mille. They average 24 per mille.

[4] Coin B. 106 in Appendix II of the author's paper in *NC* 1967; and W. 7 which is yet to be published. They contain 23·9 and 28·0 per mille silver, respectively.

[5] As low as 3 scrupula of silver per libra, i.e. 10·4 per mille. There are, however, a few superficially genuine antoniniani of Gallienus and Claudius II which contain negligible amounts of silver. It is doubtful if these items are genuine official issues: they are probably very good counterfeits (cf. items 18 to 21 in Table IV). I submit that, even at its nadir, the antoninianus was still a 'silver' denomination, and that the official issues always contained a definite proportion of silver as a token of this and to impart some respected intrinsic worth.

[6] I refer here to Aurelian's initial (pre-reform) coinage only, minted c. A.D. 270–2.

[7] R. A. G. Carson, 'The Reform of Aurelian', *RN* 1965, clearly distinguishes the visible characteristics of pre-reform, proto-reform, and post-reform coinages of Aurelian. The metallurgical characteristics and the fineness levels of the proto-reform and post-reform coinages are revealed in Table II of my paper in *NC* 1968.

[8] The Tetrici—father and son, A.D. 270–4.

more thoroughly studied[1] and are known to have reached exceedingly low fineness levels some time before the eventual submission of the Gallic empire to the conquering Aurelian, and the consequent replacement of its existing coinage by Aurelian's superior post-reform coinage[2] which was then being minted.[3]

Deceptively, four assays of Claudian antoniani listed in Hammer's survey,[4] include only one[5] which provides even the slightest indication that any coinage issue of Claudius might be found to be intrinsically inferior to the most debased issues minted for Gallienus. The new assays reported here, which are reasonably representative of the main substantive issues of Claudian antoniniani, are sufficient to establish that it was within the reign of Claudius II that the imperial antoninianus became debased to its lowest level—which was only one-half of the lowest fineness level adopted by Gallienus.[6] In mitigation of Claudius' conduct, however, it would appear that towards the end of his brief reign he did attempt some measure of reform—involving at least the restoration of the coinage fineness standard with which his reign began.[7] There is slender, but seemingly positive, evidence that his brother and immediate successor, Quintillus, minted antoniniani both for himself and for the deified Claudius at this improved standard,[8] and that Aurelian may have continued to use it for his own pre-reform antoniniani.[9]

THE MATERIAL ASSAYED

The opportunity for a study of the alloys of the coinage of A.D.

[1] P. Le Gentilhomme, op. cit. 164–5; supplemented by further (unpublished) assays made by the author.

[2] The issues marked 'XXI'; minted with a fineness standard of 10 scrupula per libra (nominally 34·7 per mille).

[3] Cf. R. A. G. Carson, op. cit. 235, for the dating of Aurelian's main coinage reform to the beginning of A.D. 274—just before his departure for his successful campaign against Tetricus.

[4] J. Hammer, *ZfN* 1908.

[5] An assay (ex Phillips via Bibra) of an antoninianus with 18·6 per mille silver.

[6] Item no. 9 (B.M. 122 in Table I) matches a 3 scrupula per libra fineness standard.

[7] Cf. item nos. 1 and 12 in Table I, and the trend indicated by item no. 11 which post-dates the coinage of lowest fineness.

[8] Cf. item nos. 15, 16, and 17 in Table III. Furthermore their finenesses are entirely consistent with the standard indicated by the few assays of antoniniani of Quintillus recorded by J. Hammer (op. cit.), and with that of Claudian tetradrachm assays originating from A. Markl.

[9] Confirmation of this suggestion awaits the acquisition of early Aurelian antoniniani for assay. So far I have made one assay, of a RESTITVT ORIENTIS type, *RIC* 141, dated A.D. 270, which contained 32·6 parts of silver per mille.

268–72 was created initially by a number of donors[1] who generously gifted the disposable antoniniani in their possession for the purposes of chemical analysis and metallography. Finally, Mr. R. A. G. Carson[2] kindly provided a number of expendable duplicate pieces, available in the British Museum, to fill the lacunae as far as was possible. The desired coverage of each of the main issues[3] could not, however, be completed, and so statistical strength is lacking at numerous points of numismatic interest and importance; nevertheless, the broad chronological pattern of changes in the coinage alloys during the reign of Claudius II does now emerge from the assays of the available material.

The extremely poor condition of some of the pieces necessitated considerable care in the preparation of truly representative samples in adequate quantity for assay; but at least 1 gm. of solid alloy—free from either superficial or penetrated corrosion products—was obtained in each case, together with a sample for microscopical examination of the complete coin cross-section.

A few complete chemical analyses[4] have been made of coins for which it was deemed particularly important to ascertain the levels of the minor impurities in addition to those of the main alloying constituents: the remainder have been analysed simply for the principal alloying elements[5] (tin, silver, and lead), using the well-proven gravimetric methods recommended by Caley.[6] Analyses were correlated

[1] I am deeply indebted to the following donors of the coins whose analyses are reported in Tables I to IV of this work:

Coins coded	'B.'	City of Birmingham Museum and Art Gallery, Mr. A. J. H. Gunstone
,, ,,	'B.M.'	The British Museum, Mr. R. A. G. Carson
,, ,,	'Ca.'	Carlisle Museum, Mr. Robert Hogg
,, ,,	'Co.'	Colchester and Essex Museum, Mr. D. T-D. Clarke
,, ,,	'L.'	City and County Museum, Lincoln, Mr. J. B. Whitwell
,, ,,	'Y.'	The Yorkshire Museum, York, Mr. G. F. Willmot

(A few items Coded 'L.H.C.' were my own coins; those Coded 'C.J.O.' are from the collection of a donor who wishes to remain anonymous.)

[2] I owe a special debt of gratitude to Mr. R. A. G. Carson, Deputy Keeper of Coins, The British Museum, for providing the majority of the material for analysis, for the identification of each piece which was assayed, and for providing numerous opportunities for discussions and correspondence on the emergent results.

[3] R. A. G. Carson, 'Hollingborne Treasure Trove', *NC* 1961, 217–19, reveals the essential simplicity of a sequence of three substantive issues of Claudian antoniniani which is concealed amidst the complexities of A. Markl's arrangement in *NZ* 1884, 375 ff.

[4] Item nos. 12 and 13 in Table II, and 15, 16, and 17 in Table III.

[5] The majority of the analyses were made at the Warrington Technical College during the Session 1967/8. I am particularly grateful to Mr. E. P. Cook, Head of the Department of Chemistry, for providing all the necessary facilities for chemical analyses at the required levels of accuracy.

[6] E. R. Caley, *Analysis of Ancient Metals.*

with the fracture appearance, hardness, and coin structure, and no anomaly was found. The combined metallurgical evidence reveals that a conventional Roman minting practice—the striking of coins from heated blanks,[1] to facilitate fabrication and to minimize die wear—was used.

THE FINENESS OF THE COINAGE

The assay results are given in Tables I to IV, together with other information of numismatic or metallurgical significance. The twelve assays of the regular coinage of Rome (Table I) reveal a descent in alloy fineness towards the middle of Claudius' reign—most of the silver proportions falling well below the lowest recorded for the last substantive issue of Gallienus from the same mint. There is a broad spread of low fineness levels embracing the later categories of the second substantive issue of Claudian antoniniani. The precise category in which the absolute nadir was reached is difficult to ascertain, but it seems that it could have coincided with the officina-marked series having the short IMP CLAVDIVS AVG obverse legend and possessing a fineness standard of no more than 3 scrupula of silver per libra of alloy.

The first, and earliest, coin listed in Table I has a fineness marginally higher[2] than the average fineness of the previous Gallienic animal-type series, but it bears the distinctive proportions of both tin and lead[3] which are found to belong to that previous issue. There was no coin of a normal initial issue available for assay, but this result, for a coin certainly minted early in the reign, indicates that after being acclaimed emperor Claudius did not effect any immediate changes in either monetary policy or minting practice. Both the fineness and the general alloy composition of the Gallienic coinage continued in use for a while. The first changes are apparent in the second series of issues, and may have been forced upon Claudius by the economic repercussions of events which preceded his own reign, the consequences of which he could not easily prevent.

The second substantive issue appears to have commenced with the long obverse legend series without officina-marks—minted in alloys having the same fineness as the initial issues. A reduced standard might have been introduced before the beginning of the similar, but

[1] A practice which greatly softens the metal and prevents it from hardening appreciably during the coin-striking operation.

[2] But not so high as to belong to the next highest practical official standard alloy.

[3] In particular the lead content of the Gallienic antoniniani does not appear to exceed 12 scrupula per libra (4·17%). In Fig. 1 they are shown to belong to a group which is different from the majority of Claudian antoniniani beyond the first issue.

TABLE I

Alloy Compositions of Antoniniani Minted at Rome for Claudius II, A.D. 268–70[1]

Item no.	*Code no.*	*Coin weight as received (gm.)*	*Die module (mm.)*	*Die axes*	*Obverse and reverse legends*	*Mint-mark*	*Composition—weight per cent.* *Silver*	*Gold*	*Tin*	*Lead*	*Copper, etc.*	*Coin reference in* RIC *V, (i)*	*Diamond pyramid hardness number (5 kg. load)* *Near coin rim*	*Coin interior*	*After annealing*
FIRST SERIES															
1	B.M. 115	2·95	21	200°	IMP C CLAVDIVS AVG SPES PVBLICA	|	3·16	Trace	7·28	3·97	The remainder	No. 102	59·7	61·0	63·9
EARLIER SECOND SERIES															
2	B. 143	2·82	20	160°	IMP C CLAVDIVS AVG A[NNO]/NA AVG	|	2·22	Trace	6·43	4·70	The remainder	No. 18	150	112	85·2
3	B.M. 117	2·45	21	190°	IMP C CLAVDIVS AVG IOVI VICTORI	|	2·56	Trace	5·87	4·02	The remainder	No. 54	95·3	90·6	64·6
4	B.M. 118	2·65	21	10°	IMP C CLAVDIVS AVG I[O]VI VICTORI	| N	1·33	Trace	6·54	7·20	The remainder	No. 55	142	142	74·9
INTERMEDIATE SERIES															
5	Ca. 2	2·26	20 (estimated)	160°	[IMP C CLA]VDIVS AVG [P]A[X]/AVG	|	1·58	Trace	8·85	4·81	The remainder	No. 79	185	180	66·0
6	B.M. 116	2·73	20·5	170°	IMP C CLAVDIVS AVG SALVS/AVG	|	1·82	Trace	7·95	6·29	The remainder	No. 98	161	121	68·1
LATER SECOND SERIES															
7	B.M. 119	2·91	*Obv.* 21 *Rev.* 20·5	180°	IMP CLAVDIVS AVG ANNON[A AV]G	| Δ	1·67	Trace	5·83	8·22	The remainder	No. 19	75·7	68·5	63·9
8	L. 7	2·58	20 (estimated)	20°	[IMP (C) CL]AVDIVS AVG FIDES [EXERCI]	| XI	1·20	Not detected	8·53	10·13	The remainder	No. 34/35	116	108	72·4
9	B.M. 122	2·61	19 (estimated)	20°	[I]MP CLAVDIVS AVG FIDE/S EXERCI	| XI	1·08	Trace	7·70	3·63	The remainder	No. 35	96·5	113	69·6
10	B.M. 121	2·37	19 (estimated	340°	IMP CLAVDIVS AVG PROVIDEN[T A]VG	| XII	1·94	Nil	8·72	6·61	The remainder	No. 92	126	117	72·4
THIRD SERIES															
11	B.M. 120	2·37	20 (estimated)	200°	IMP CLAVDIVS AVG [F]IDES MILITVM	| Є	1·71	Trace	6·87	Present; not determined[2]	The remainder	No. 38	90·6	83·6	71·2
12	B.M. 123	4·41	20	0°	IMP CLAVDIVS AVG FORTVNA RED[VX]	|	3·99	Trace	0·19	1·17	The remainder[3]	No. 41	85·2	105 120	64·2

[1] The coins are listed here in a suggested order of issue which is based on the sequence indicated by Carson in *NC* 1961 but modified in the light of these assays.
[2] The presence of lead was revealed by the appearance of the fracture-surface of the coin sample.
[3] For a complete analysis, based on a sample of the other half of the coin, see Table II.

marked, issues.[1] It was not possible to obtain samples of the issue with short legend and no mint-mark for assay, but examples of those with mint-marks present a broad scatter of low silver contents. These may not really indicate vague official intentions but could be associated primarily with the segregation effects within batches of coinage alloys containing the increased lead additions which are now shown to have been made to the coinage alloys at this stage. The effect of the segregation of alloying constituents in a melt, and in the coinage produced, is to blur the silver assay results for the coinage as a whole. Thus it will be difficult to be certain of the precise standards decreed for each of the four issues in the second (double) series until more statistically significant assays, of similar accuracy with respect to individual coins, become available. In so far as it is possible to judge from the existing assays, however, one of the groups to which items 8 and 9 belong seems to mark the true nadir.

Only two coins listed in Table I belong to what were definitely the third (and last) substantive issues of Claudius—whose officina types were continued almost exactly by Quintillus. These, and in particular the unmarked FORTVNA REDVX type (item 12), appear to indicate a certain improvement in fineness towards the end of Claudius' reign. The fineness of this piece was the highest encountered in the present work; this, together with the style, type, mint-mark, and inscriptions, points to an undoubted official product of the mint of Rome. Strangely, however, the base metal composition is exceptional for a coin minted within the legitimate empire. The toughness of the alloy, and the fine-grained salmon-pink appearance of its fracture, correlated exactly with my initial determinations of the low proportions of base alloys in the copper. But the unexpected and inexplicable results justified submitting the other half of the coin to a fuller, and confirmatory, analysis. The results are given in Table II, alongside analyses of near-contemporaneous Milanese coins, to demonstrate that the alloy bears no close metallurgical resemblance to them[2]—although Milanese antoniniani minted about a decade earlier for Gallienus, and subsequently for Postumus, do have a somewhat similar base alloy and trace impurity pattern.[3] The alloy is, however,

[1] If item no. 4 is truly representative of its series.

[2] The proportions of lead and tin are quite different; and so are the minor impurities. In particular the nickel:copper ratios differ by a factor of two—suggesting that the coppers came from quite different sources.

[3] Assays of Milanese coins for Gallienus and Postumus (yet to be published) reveal that they are also essentially argentiferous coppers, containing very little tin or lead.

Table II

A Comparison of the Composition of an Exceptional Alloy Minted at Rome with Typical Antoninianus Alloys Minted at Milan for Claudius II, A.D. 268–70

Item no.	*12*[1]	*13*	*14*
Code no.	B.M. 123	B.M. 125	L.H.C. 11
Mint	Rome	Milan	Milan
Mint-mark	⊥	⊥ T	⊥ T
Coin reference	*RIC* 41	*RIC* 157	*RIC* 157
Obverse	IMP CLAVDIVS AVG	[IMP] CLAVDIVS PF AVG	IMP CLAVDIVS PF AVG
Reverse	FORTVNA RED[VX]	PA/X A/VG	[PAX]/AVG
Condition, wear	Well worn	Slight wear	Moderate wear
Condition, corrosion	None apparent	None apparent	Heavy deposit (0·13 gm.)
Appearance	Patinated. A few edge cracks visible	Dark red-bronze patina	Uniform corrosion layer. No pitting
Weight, grammes	4·41	2·66	2·87
Dimensions, mm.	20–23	17–20 (oval)	16·5–18
Die module, mm.	20	19·5 (estimated)	19 (estimated)
Die axis	0°	190°	10°
Composition (weight per cent):			
Silver	4·29	3·27	2·84
Gold	Trace	Not detected	Trace
Copper	94·50	87·50	The remainder
Lead	0·87	4·03	2·34
Tin	0·12	4·87	5·64
Iron	0·020	0·062	
Nickel	0·021	0·042	Not determined
Cobalt	0·0030	0·0020	
Zinc	0·013	0·02	
Total	99·84	99·80	
Analysts	Alfred H. Knight, Ltd., Wallasey, Cheshire.		The author
Alloy classification	Argentiferous copper	Argentiferous medium-leaded tin-bronze	Argentiferous low-leaded tin-bronze
Fracture; and its appearace	Fairly tough; salmon-pink	Fairly tough; grey	Fairly tough; salmon-pink-grey
Diamond Pyramid Hardness (5 kg. load):			
(i) near coin edge	85·2	95·3	182
(ii) in thickest section	105,120	110	153
(iii) after annealing	64·2	77·9	82·6

[1] See Table I for an initial analysis of the other half of the coin.

TABLE III

The Chemical Analysis of a Consecration Antoninianus Issued after the Death of Claudius II Gothicus, Compared with Analyses of the Coinage of Quintillus, A.D. 270

Item no.	15	16	17
Code no.	B.M. 124	C.J.O. 3	B. 167
Emperor	Divus Claudius	Quintillus	Quintillus
Mint	Rome	Rome	Rome
Mint-mark	— | —	— | XI	— | [XI]
Coin reference	*RIC* 266	*RIC* 31	*RIC* 31
Obverse	DIVO CLAVDIO	[IMP C] M AVR CL QVINTILLVS A[VG]	IMP CM AVR CL Q[CINT]ILLUS AVG
Reverse	CONSECRATIO, Eagle, r.	[SE]CVRIT A[VG]	SECVRIT [AVG]
Condition, wear	Moderate wear	Well-worn	Well-worn (Rev. very smooth)
Condition, corrosion	Uniformly corroded; no pitting Dented and bruised	Uniformly corroded	Uniform, light, corrosion
Appearance	Dark olive-green	Very oval. One radial crack to centre	Pale green. One radial crack, 4 mm.
Weight, grammes	2·49	2·15	2·84
Dimensions, mm.	18–20	17·5–23	18·5–21
Die module, mm.	20 (estimated)	21	20
Die axis	350°	20°	10°
Composition (weight per cent):			
Silver	3·90	2·75	2·48
Gold	Not detected	Not detected	Not detected
Copper	80·35	83·50	84·15
Lead	9·17	7·90	6·67
Tin	5·50	5·33	6·58
Iron	0·057	0·085	Trace
Nickel	0·038	0·039	0·05
Cobalt	0·0080	0·0031	0·06
Zinc	0·79	0·39	0·04
Total	99·813	99·997	100·03
Analysts	Alfred H. Knight, Ltd., Wallasey, Cheshire.		H. N. Billingham, Wednesbury College of Technology, Staffordshire.
Alloy classification	Argentiferous medium-leaded tin-bronze	Argentiferous medium-leaded tin-bronze	Argentiferous medium-leaded tin-bronze
Fracture; and its appearance	Fairly brittle; greyish	Fairly brittle; greyish	Fairly tough; dull salmon-pink-grey
Diamond Pyramid Hardness (5 kg. load):			
(i) near coin edge	117	162	100
(ii) in thickest section	110	107	150
(iii) after annealing	70·8	71·2	78·8

remarkably similar to alloys minted in Gaul by Victorinus[1] at about the same time. There exists, therefore, the possibility that captured Gallic virgin mint-metal supplies, or sorted and remelted Gallic coinage, came to be used for this coin, since it seems impossible for it to have been actually minted in Gaul at that time when Gaul was firmly under the independent control of one or other of its own emperors. Perhaps Gallic mint-metal or coin supplies were intercepted during a sortie by Roman frontier troops, and then shipped to Rome for minting: or perhaps it became the policy in the legitimate empire to sort, melt, and recoin the finer Gallic pieces[2] which found their way across the frontier.

The fineness standards of the two Milanese coins of Claudius II which are listed in Table II equate well with the best coins minted at Rome; but it seems anomalous that the PAX AVG coinage of Milan[3] should have nearly twice the fineness of the single example of a PAX AVG coin of Rome.[4] The explanation might be that, since this was a very common type, it could have been issued at different times in alloys of quite different standards—just as had happened a few years earlier, during the reign of Gallienus.[5]

THE FINENESS OF THE CONSECRATION COINAGE

A genuine Divus coin for Claudius II Gothicus is listed with two coins of Quintillus in Table III. Their silver contents reveal standards for fineness which correspond with those which were in operation at the beginning of Claudius' reign. The 6 scrupula per libra standard of A.D. 266–8 appears to have been eventually restored by early A.D. 270, since all the assay results of later coins shown in Table III can be interpreted as matching the last Gallienic standard. This standard was probably already in operation at the time of Claudius' death, and Quintillus evidently continued to use it with the same practical conservatism with which he is known to have continued the minting of the Claudian third series of types from the same officinae.

[1] With respect to both alloy content and trace impurities; assays of coinage of the Gallic emperors yet to be published.

[2] P. Le Gentilhomme, op. cit., reveals that the earliest issues of antoniniani for Victorinus were minted in alloys having higher proportions of silver than any of the Claudian issues—although the later issues for Victorinus can be seen to belong to the same low standard as that at the nadir under Claudius II.

[3] Item nos. 13 and 14.

[4] Item no. 5 in Table I.

[5] P. Le Gentilhomme, op. cit., gives fineness values for Gallienic PAX AVG pieces which range from 152 to 42 per mille. They belong, clearly, to different issues of the same reverse type within the reign.

TABLE IV

Chemical Analyses of Irregular and Imitation Antoniniani Attributed to Claudius II and to Divus Claudius II

Item no.	Code no.	Coin weight as received (gm.)	Coin dimensions; major and minor axes (mm.)	Die module (mm.)	Die axes	Obverse and reverse legends	Mint-mark	Composition—weight per cent: Silver	Gold	Tin	Lead	Copper, etc.	Resemblance to coin reference in RIC v, (i)
18	L.H.C. 1	2·22	18–20·5	19 (estimated)	170°	[I]MP CLAVDIVS AVG ANN[ONA AVG]	|Δ	0·50	Nil	8·40	10·70	The remainder	Cf. no. 19[1]
19	B. 124	2·34	16·5–19	20 (estimated)	0°	IMP[C C]LAVDIVS A[VG] [LIB]ERT/AVG	|	Nil	Nil	7·09	15·11	The remainder	Cf. no. 62[1]
20	Co. 5	1·90	17–18	18·5 (estimated)	325°	IMP C CLA[VDIV]S [AV]G [AETER]NI[T] AVG (Possibly)	|	Nil	Nil	9·01	Present;[2] not determined	The remainder	Uncertain
21	L.H.C.	1·75	15–17	19 (estimated)	190°	[DIVO CLAVDIO] CONSECR[ATI]O Eagle, l.	|	Nil	Nil	8·49	7·75	The remainder	Cf. no. 266[1]
22	L.H.C. 16	1·58	17–20·5	19	340°	[DIVO] CLAVDI[O] [CO]NSECRATIO Eagle, l.	|	Nil	Nil	6·25	9·79	The remainder	Cf. no. 266, irregular
23	L.H.C. 15	1·37	14–16·5	17+	40°	Inscription off the flan [CON]SECRATIO Eagle, l.	|	Nil	Nil	7·25	6·19	The remainder	Uncertain
24	B. 77	0·68	10·5–12	16 (estimated)	310°	Inscription off the flan Inscription off the flan. Eagle	|	Trace	Nil	8·38	7·27	The remainder	Uncertain, imitation
25	C.J.O. 26	1·79	15·5–16·5	18	0°	[DI]VO CLAVDIO CONSECR[ATIO] Altar	|	Nil	Nil	7·46	16·60	The remainder	Cf. no. 262, irregular
26	B. 74	1·94	15–17	17 (estimated)	10°	[D]IVO [CLAVDIO] CONSEC[RATIO] Altar	|	Nil	Nil	6·47	13·40	The remainder	Uncertain
27	B. 75	1·35	12–13	16+	180°	Illegible inscription. Consecratio, Altar	|	Nil	Nil	6·30	Much present;[2] not determined	The remainder	Uncertain, imitation
28	Y. 1	1·95	14·5–17·5	17+	180°	Inscription off the flan [C]ON[SECRATIO] Altar	|	Nil	Nil	8·97	Estimated about 10%;[2] not determined	The remainder	Uncertain, irregular
29	B. 76	0·86	11·5–12	16–	210°	Inscription off the flan Inscription off the flan. Altar	|	Nil	Nil	7·54	11·85	The remainder	Uncertain, imitation

[1] Initially thought to be regular, before analysis.
[2] Lead content judged from fracture appearance and microstructure.

A notable characteristic of the plentiful irregular Divus coinage for Claudius II (Table IV) is that it is found to be nearly completely devoid of silver; and without any trace of gold; and generally it contains excessively high proportions of lead (as detailed in Table IV and depicted in **Fig. 1**). These are three certain additional criteria whereby the irregular coinage can be judged, together with the accepted visual evidences of irregular style, inscriptions, coin module, weight, and die axes.

THE BASE-METAL CONSTITUENTS OF THE COINAGE ALLOYS

Copper is the principal constituent of all the Claudian antoniniani—being found in excess of 75 per cent in even the most highly alloyed irregular coin in the present set of analyses. All the genuine coins examined resembled plain bronzes in appearance. Externally they bore no trace of visible silvering; although discrete minute particles of a white silver-rich phase could be discerned within the argentiferous bronzes when sections were examined with a microscope. Even though they contain some silver the coins are essentially bronzes, with the single exception of item 12—which is really an argentiferous copper containing small amounts of tin and lead as impurities only.

The distinctive metallurgical feature of the majority of Claudian antoniniani minted at Rome is that their alloys contain substantial (and needlessly excessive) proportions of both tin and lead. These exceed the proportions to be found in any known antoniniani of earlier or later reigns. **Fig. 1** depicts how the tin content remained fairly consistent (in the region of 1, and later $\frac{3}{4}$, uncia per libra) throughout the reign; but the lead contents appear to have been steadily increased and then, subsequently, decreased. The residual lead is found to be present in the regular coinage to the extent of $\frac{1}{2}$ to $1\frac{1}{2}$ unciae per libra. In consequence the coins are brittle and highly susceptible to deep-penetrating corrosion. In view of the inherently poor malleability of the alloys it is not difficult now to understand why so few of the pieces are found to be free from radial or edge cracks, and why the metal has (in so many instances) failed to flow to the limits of the die circle during coining. The presence of interdendritic lead in the alloy structure accounts for the poor state of

preservation of the coins of this era which have lain in a corrosive environment.[1]

At the mint of Rome the early issues for Claudius II are seen to be almost identical in composition with those which had been so recently minted for Gallienus—the lead content being about one-half of that for tin. During the course of the second substantive issue, however, it is apparent that increased quantities of lead began to be used in the alloys—although not consistently. It is possible that the different

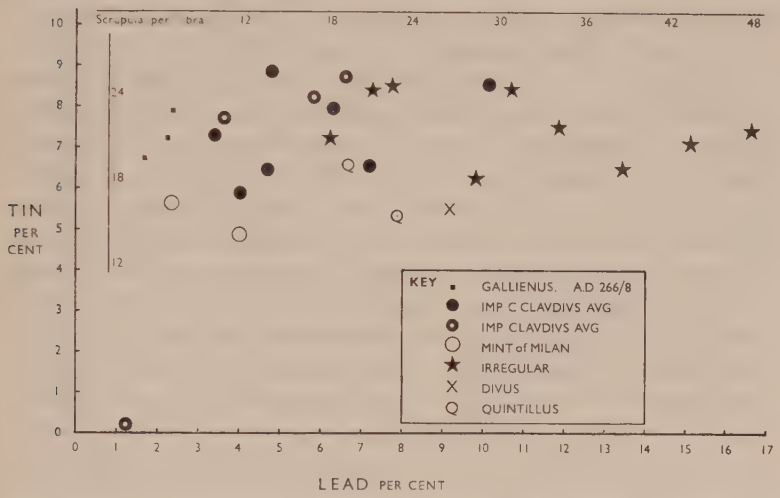


FIG. 1. The various proportions of tin and lead in the alloys of antoniniani minted from A.D. 266 to 270.

officinae were permitted some latitude in their alloying practices. The various merging categories of base metal alloys adopted from A.D. 266 to 270 (from Gallienus to Quintillus) are also shown in **Fig. 1**. It is now abundantly apparent that the alloys of the regular coinage, minted for Claudius II at Rome, descended to both a fineness and metallurgical nadir at about the same time—during the later period of the second substantive issue—with an excessive indulgence in the use of lead in the alloys coincident with the lowest fineness

[1] Lead is insoluble in the coinage alloys in the solid state. Exposed particles at the alloy surface are readily corroded in poorly aerated moist soils. In any corrosive environment lead is anodic to its bronze matrix, and is preferentially attacked. When it is present in a coinage alloy in sufficient quantity to form an almost completely interconnected network (above, say, about 10%) the complete disintegration of a coin is possible in much less than archaeological time in even mildly corrosive conditions.

standard. Only the irregular coinage for Claudius II and Divus Claudius II is more markedly inferior; one piece being found to contain the equivalent of 2 unciae of lead per libra of the coinage alloy. It is possible that practical difficulties in the minting of such poor coinage alloys at Rome forced some metallurgical optimization of the compositions of the alloys towards the end of Claudius' reign, when reductions in both the lead and tin proportions are evident. Quintillus adopted the somewhat better basic alloys which were developed, and these were also at first adopted, and improved later under Aurelian.

The metallurgical traditions of the mint of Milan[1] were different from those of Rome for some time before Claudius became emperor; and the alloying practice throughout the reign, though modified, remained different from those of Rome. For Gallienus, and subsequently for Postumus, Milan coined alloys which were virtually argentiferous coppers, containing very little tin or lead. After its recovery for the empire[2] the moneyers at Milan seem to have been reluctant to use such highly alloyed base metals as their Roman colleagues. The Milanese coinage assays in Table II reveal their compromise—a trend in the direction of deliberate additions of small proportions of tin and lead, which, preferred in moderation, gave better coinage alloys than were in contemporaneous use at Rome.

THE MICROSTRUCTURES OF THE COINAGE ALLOYS

Hardness tests were made on the polished coin cross-sections prepared for metallographic examination, and on small sections after annealing.[3] The measured values are given in Table I. The difference between the hardness of the annealed (fully softened) material and the hardness of the as-received coin can be used as a measure of the degree of cold-deformation which the coin received during the striking operation. The proximity of these values, in a number of instances, supports the microstructural evidence that hot-striking—resulting in little or no increase in the hardness of the completed coin—was the general minting practice used. The occasional chilling effect of the

[1] The preference for coinage alloys containing very little tin or lead.

[2] Claudius was acclaimed emperor, in A.D. 268 at Milan, which began then to coin for him. Milan appears to have been largely uninfluenced by coinage alloy developments at Rome before, and even during, the reign of Claudius.

[3] Small specimens were annealed by raising them to red-heat in a gas flame and cooling them, fairly rapidly, in air. The superficially oxidized surface was then removed to expose the softened alloy core for hardness testing.

dies is manifest in the wide scatter in hardness values measured within the coin materials, whose basic alloys, in the annealed state, have a remarkably narrow range of hardness despite fairly wide variations in alloy composition. In no case is the hardness of a coin consistent with its having been entirely cold-struck from a sessile drop of its alloy.

The microstructural phases present in the regular coins are consistent with their blanks having been heated to a red-heat for some considerable time before hot-striking. Even in those coins with the highest tin contents there remains no trace of the tin-rich delta-phase which was most probably present in the original cast alloy buttons: prolonged reheating would have been necessary to eliminate it by the slow diffusion processes which obtain, and to render the blanks more malleable for coin-striking. In general the grain structures are extremely fine, and it is difficult to discover any metallographic evidence of cold deformation even in those coins which are known to be internally stressed because their hardness values are somewhat in excess of those of their alloys in the annealed state. One coin[1] which was in the softest condition possible, possessed an unusually large grain size. This might be the consequence of striking from a very hot blank which emerged from the dies with sufficient residual heat to effect complete softening and some grain growth. Alternatively, it could have been accidentally or deliberately reheated for some reason now unknown and unascertainable.

THE SEQUENCE OF ISSUES FROM THE MINT OF ROME

The assays support, in general, the simple sequence of three substantive issues as distinguished by Carson,[2] and they now provide some indication of the chronological order of the four categories in the second (double) series. They create, however, a difficulty in the placing of the PAX AVG and SALVS AVG types which, although they have never been established as certainly part of the initial issue, are never found as later officina-marked types. Previously they have been grouped with the usual initial types—in what seems now to be an incongruous position with respect to their low fineness values. I suggest that it is more probable that the PAX and SALVS coins represented in the assays really belong to an intermediate series

[1] Item no. 1 in Table I.
[2] R. A. G. Carson, op. cit. (n. 3 on p. 148).

located, perhaps, between two categories in the second issue—after the first reduction in fineness standards had been effected by Claudius, or even later. Thus, in Table I, I have presumed to place them, tentatively, in an intermediate chronological position. Two other features of the two coins (their slightly diminished module, and their higher lead content compared with some of the issues which are placed earlier) support their belonging to a later series than the first, or the initial second, series. It is possible that these PAX and SALVS types might have been minted anonymously, by all the officinae, while the revision of standards took place within the second issue series; or while the new officina types and alloy compositions were being formulated for the third series of issues. Doubts are now created concerning the correct location of the unmarked IOVI STATORI type, which Carson included also in the list of types in the first series, but for which there is as yet no available assay.

THE DATING OF THE FIRST CONSECRATION ISSUES

The fineness and the constitution of the alloys of the consecration coins for Claudius II have not been studied previously. An analysis of one coin (Table III) reveals the presence of silver at a level much superior to that of the coinage at the nadir within Claudius' reign, and comparable with the two antoniniani of Quintillus and a pre-reform antoninianus of Aurelian.[1] The fineness level does not, therefore, indicate in which of the two reigns, subsequent to that of Claudius, the DIVO CLAVDIO antoniniani began to be issued. This has long been a matter of uncertainty, for, although the consecration coinage must have been issued after the death of Claudius, the reign of Quintillus was so sudden and so very brief that it has seemed reasonable to suppose that he might not have initiated the issue of the consecration coinage for his brother, but that Aurelian might have been left to do so instead.

Comparison of the coin analyses in Table III reveals, however, that there are such marked metallurgical similarities between a regular issue for Quintillus and the Divus piece for Claudius—with respect to the principal alloys and the characteristic impurities—that it is almost certain that they were minted contemporaneously, and, perhaps, even from raw materials from an identical and newer source different from any used for the coinage during the reign of Claudius.

[1] Cf. n. 9 on p. 147.

The zinc proportions are particularly relevant, since they have not been found at so high a level in any of the earlier coinage, nor in that of post-reform Aurelian. They coincide with a change in raw materials or in metallurgical practice at the mint of Rome in the short time between the reigns of Claudius and Aurelian. It is highly probable, therefore, that Quintillus did, indeed, swiftly issue the first consecration coinage for Claudius within his own reign and very shortly after Claudius' death.

Such a coinage, of restored or even superior intrinsic worth, commemorating the deification of an able and popular emperor, would have been much more highly regarded than many of the plentiful but baser regular Claudian issues in circulation at the time. This situation would have provided considerable incentive for the counterfeiters to reproduce the consecration pieces in cheaper highly leaded plain bronzes, of similar appearance but devoid of silver. This may explain the copious output of imitation consecration coins of Claudius II—which have been observed to form the second largest single category of the so-called 'barbarous radiate' coins in the entire Roman series.[1]

It is interesting to speculate that had Claudius II Gothicus not succumbed to the plague, at Sirmium in A.D. 270, within a few months of his great victory over the Goths at Naïssus in Moesia, he might have advanced further with the necessary restoration of the coinage which Aurelian was able to accomplish within the next four years. It is possible that the slight raising of the fineness standard towards the end of the reign foreshadowed further intentions of improvement. In the actual event, however, it was Claudius' misfortune to have taken the imperial antoninianus to its absolute nadir in intrinsic worth, and to be prevented, by untimely death, from raising the standard by more than a small step towards the superior heights which were attained later.

[1] R. A. G. Carson, *Coins, Ancient, Medieval and Modern* 172.

A HOARD OF RADIATE IMITATIONS FROM THE TETELBIERG (G.-D. OF LUXEMBOURG)

By R. WEILLER

[SEE PLATES VII–VIII]

THE Tetelbierg, an important Gallo-Roman oppidum situated near Lamadelaine at the south-west point of Luxembourg, is known as an inexhaustible source of antique coins, both Gallic and Roman. The hoard in question was discovered in 1952 by Monsieur Joseph Greisch of Niedercorn in a field disturbed as a result of collapsing galleries which had served for mining iron-ore. This field bears the number 408/27 (or 406/1585) of the land-register.

FIG. 1.

The coins were contained in an earthenware jug of light ochre colour—a variant of type Gose 379[1]—which was found at a depth of c. 60 cm beneath the actual surface of the ground (**Fig. 1**). The upper part of the pottery—neck and handle—is broken away, but this is probably not an ancient break. The total number of coins amounted to 627: local imitations ('barbarous radiates') exclusive of any

[1] Erich Gose, *Gefässtypen der römischen Keramik im Rheinland*, Beiheft 1, *Bonner Jahrbücher*, Kevelaer, 1950.

official specimen. They were dispersed soon after the discovery and found their way into several private collections. Thanks to the amiability of Messieurs Lucien Reding and Alphonse Wiltgen, I was able to trace 470 specimens which were kindly placed at my disposal by their present owners.

The number of 470 specimens includes one small fragment of a radiate imitation, one brockage showing the incuse obverse type on the reverse and two blanks. The coins range in diameter from 10 to 12 mm.; the extreme limits being 8 and 14 mm. Most of them are in excellent condition; only a few possibly bear some traces of wear. Nearly all the coins are struck on too-small flans: legends are therefore generally entirely or partly off-flan, rendering in numerous cases an exact reading impossible. The distribution of the 467 coins according to obverse legends (some attributions included[1]) is as follows:

Augustus and Agrippa	1
Claudius II (268–70)	2
Claudius II, divus (270)	15
Victorinus (269–71)	2
Tetricus I (271–3)	95
Tetricus II (Caes. 271–3)	18
Probus (276–82)	1
Undetermined	333
	467

Most of the undetermined coins have certainly been imitated from antoniniani of Tetricus I or copied from existing imitations of his coins. A few specimens are reminiscent of reverse types appertaining to other emperors, e.g. nos. 100–1, 125, 215–16, and 252 of the catalogue.

The only stray coin in this homogeneous series is the cast copy of the well-known As of Augustus and Agrippa from Colonia Nemausus, the prototype of which may be dated to the period of 28 B.C.—beginning of the reign of Tiberius[2] **[Pl. VIII. 5]**. The copy of Probus **[Pl. VIII. 37]** indicates the *terminus post quem* for the burial of the hoard, which cannot have taken place earlier than A.D. 276, the beginning of this emperor's reign.

[1] Altar-types have been attributed to Claudius II, divus; some specimens showing unbearded obverse busts or heads have been ascribed to Tetricus II.

[2] Konrad Kraft, 'Das Enddatum des Legionslagers Haltern', *Bonner Jahrbücher* 155/156, 1956, 95–7 and pls. 15–16.

Much has been written on dating 'barbarous radiates' and there is no need to discuss this further, for today it is generally admitted that these imitations are (almost) contemporaneous with their official prototypes, as has been proved by the Verulamium theatre hoard.[1] The Tetelbierg hoard may be compared with hoards made up after the reform of Aurelian and buried in the reign of Probus. These hoards have in common that they are mainly composed of base antoniniani (and imitations) from the sole reign of Gallienus to the reign of Aurelian (normally only pre-reform coins) and ending with a very few specimens of later reigns, usually with one or two coins of Probus:

St. Mard I (Prov. Luxbg, Belgium):[2]	Tacitus (275–6),	1 imitation.
St. Mard II „ „ „ :[3]	Probus (276–82),	1 „
La Vineuse (Seine-et-Loire, France):[4]	„ „	2 „
Bus-la-Mésière (Somme, France):[5]	„ „	1 antoninianus.
Evreux (Eure, France):[6]	„ „	„
(more than 110,000 coins)		

There can hardly be any doubt that the burial of the Tetelbierg hoard took place towards A.D. 280.

Part I of the catalogue lists the coins showing obverse and reverse die identities and die-links. To these we have added a few specimens which, though not showing die identities, are nevertheless very similar in style (obverse). This section totals 133 coins struck from 35 obverse and 45 reverse dies **[Pls. VII. 1–48 ; VIII. 1–4]**. The largest single group is represented by twenty-four specimens showing obverse and reverse die identities (nos. 6–29) **[Pl. I. 3]** and is linked by obverse die identity to two other reverse dies, one being represented by one specimen **[Pl. VII. 1]** and the other by four specimens **[Pl. VII. 2]**. There is evidence of some more instances of die-links amongst the other coins of this first section, as can be seen from the catalogue. The presence of so many die identities is important in more than one respect. They prove that these coins can have circulated only for a very short time (some may not have circulated at

[1] T. V. Wheeler, 'A Hoard of Radiate Coins from the Verulamium Theatre', *NC* 1937, 211–28 and Pls. XI–XXX.

[2] M. Thirion, *Les Trésors monétaires gaulois et romains trouvés en Belgique*; Cercle d'Études Numismatiques, *Travaux* iii (Bruxelles, 1967), 144, No. 256.

[3] Ibid. 144, No. 257.

[4] P. Le Gentilhomme, 'Le Trésor de La Vineuse . . .', *RN* 1942, 23–102 and pls. i–viii.

[5] J. Gricourt, 'Le Trésor du IIIe siècle de Bus-la-Mésière', *RBN* 1954, 32–56 and pls. ii–iii.

[6] *RN* 1892, 7–27 and *RBN* 1892, 321–2.

all), as their excellent conservation in fact suggests. In consequence, they must originate from a mint situated close to the findspot. From the 133 above-mentioned coins, at least 82 specimens, struck from 16 obverse and 24 reverse dies, are so similar in style that they must not only be attributed to one and the same mint but they even betray the hand of the same engraver [**Pl. VII. 1–28**]. The fact that these coins must originate from a mint situated close to the findspot, the presence of at least eighty-two specimens struck from dies engraved by the same die-sinker, and the presence of two blanks (nos. 469–70), make it highly probable that the mint which issued these coins was in fact on the Tetelbierg. A further indication which, if not decisive is at least a welcome support for our hypothesis, lies in the die identity shared by four coins also found on the Tetelbierg, but on the surface, with specimens from the hoard. Three of them share obverse and reverse die identities with our nos. 6–29 [**Pl. VII. 3**]; one shows the same reverse, whilst the obverse is different, somewhat similar to our nos. 30–8 [**Pl. VII. 4**]. Of these, three are in the Cabinet des Médailles of the Musée d'Histoire et d'Art, Luxembourg, and one is owned by a private collector. An interesting feature on the coins of this group is that all those from the hoard have the die axis ↓, whereas from the isolated finds only one shows die axis ↓, whilst for two others it is ↖ and ↘. They vary in weight from 0·29 gm. to 0·83 gm. The major part of the other coins of the hoard also falls within these limits.

The large majority of the coins shows normal, reasonably round flans, whilst a few items, due to a different technique of flan manufacture, present irregularly clipped borders [**Pl. VII. 46–8**]; in a few instances coins are struck on thick flans with roughly cut borders [**Pl. VIII. 48**]. In most cases the metal appears to be bronze, but the yellowish colour of a number of specimens suggests utilization of orichalcum in flan manufacture as well.

A very interesting feature on 'barbarous radiates' is the emphasis placed on details of legends or obverse and reverse designs, a fact which had already been stressed by P. V. Hill.[1] Some notable examples are furnished by the Tetelbierg hoard. No. 154 [**Pl. VIII. 14**] shows a copy of an antoninianus of Victorinus with reverse type Mars Victor (Elmer 739); the emphasis here lies on the letter V of Victorinus, the sole letter remaining of the obverse legend of the

[1] P. V. Hill, '"Barbarous Radiates", Imitations of Third Century Roman Coins', *NNM* cxii, 7.

official prototype. Similarly, we find only the letters TE standing for Tetricus on the obverse of another specimen (not illustrated). Emphasis of a certain detail normally implies simplification of its environment: from the ten specimens in the hoard with 'sacrificial implements'-type, six show the vase alone [**Pl. VIII. 36**]. As stylized as these tiny coins may be, after most of the obverse design has vanished, the radiate crown always remains. Two specimens [**Pl. VIII. 34, 42**] show extremely degenerate heads r., but the radiate crowns, though much simplified, are still clearly visible. Interesting features are also to be found on the series of coins engraved by the same die-sinker. On seven specimens struck from different dies, the reverse legend ends in ΛCV for ΛVC, and this error is also found twice in obverse legends. By a caprice of the engraver the personifications on the reverse are nearly always shown holding a baton, which is mostly forked when it is the attribute of a female personification [**Pl. VII. 9, 10, 12, 13, 14, 17, 19, 22**]. Both peculiarities represent in some way the 'signature' of this artist.

Legends, if at all visible, are always blundered or even completely unintelligible, sometimes evolving into a design of purely decorative character [**Pl. VIII. 15** (*Rev.*), **38** (*Obv.*)]. As far as is legible, legends often do not correspond with the types represented. Examples are to be found on a number of specimens of the Tetelbierg hoard, for instance the figure of Salus may be accompanied by a Pax legend (nos. 54–8) or the reverse may be composed of elements proper to three female personifications, as on no. 211 [**Pl. VIII. 26**]. This specimen bears the blundered legend of Hilaritas around a delightfully stylized Spes holding a wreath instead of a flower, probably borrowed from Laetitia. The Tetelbierg hoard yields many remarkable imitations, but rarely are they of such originality as nos. 26, 31, 45, and 47 of Plate VIII, especially with regard to their reverses. As the traditional way of listing radiate imitations by reverse types would have rendered difficult the comparison of coins which belong together stylistically, we have divided the catalogue in two parts. Part I lists the coins with obverse and reverse die identities or similarities, whilst part II is a summary of reverse types with cross references to part I. Obverses always have the radiate imperial effigy to right. Legends have sometimes been restored from several identical specimens and their reading may therefore not be exactly that shown by the coins illustrated. In part I the group of three numbers following the descriptions, indicates: (*a*) the weight in grams; (*b*) the

diameter in millimetres; (*c*) the die axis in terms of the clock-face. In part II the figure in brackets represents the number of dies, not the number of specimens. A summary, placed at the end of the catalogue, lists all the reverse types occurring in the hoard, with indications of the number of specimens and the number of obverse and reverse dies.

Since this paper was written we have been fortunate enough to discover in the Luxembourg Museum's collection yet another specimen showing obverse and reverse die identity with a coin from the hoard. This item too is an isolated find from the Tetelbierg and is struck from the same dies as no. 63 of the catalogue. The reverse legend and other details have been restored from that specimen. Die axes are the same for both of them.

The photographs are the work of Monsieur Albert Biwer, photographer at the Musée d'Histoire et d'Art, Luxembourg.

CATALOGUE

PART I

[Pls. VII: 1–48; VIII: 1–4]

1. *Obv.*]TETR[(Tetricus I). 1 specimen
Rev. Jupiter stg. facing, head r., holding sceptre and thunderbolt.
0·86/12×14/12 **Pl. VII. 1**

2–5. *Obv.* Identical with no. 1. 4 specimens
Rev. Female personification holding (?) and sceptre.
0·49/10/6 0·64/13/8 **Pl. VII. 2**
0·50/10/6 0·78/12/12

6–29. *Obv.* Identical with nos. 1–5. 24 specimens
Rev.]-(?)ΛCV, Virtus helmeted, drapery on shoulders, stg. r., holding spear, l. hand resting on baton (instead of shield).
0·29/8/6 0·47/11/6 0·58/11/6 **Pl. VII. 3**
0·34/9×11/6 0·48/10/6(2) 0·59/10/6
0·39/10/6(2) 0·49/10/6(2) 0·61/9×12/6
0·40/9×11/6 0·55/10/6 0·65/11/6
0·44/10/6 0·56/11/6 0·66/10/6
0·45/10/6(3) 0·57/10/6 0·84/11/6(2)

30–8. *Obv.*]CVSA[(Tetricus I). 9 specimens
Rev. As nos. 6–29; very great similarity of style.
0·35/10/12 0·46/10/8 0·60/12/9 **Pl. VII. 4**
0·38/11/3 0·52/10/6 0·63/10/1
0·45/10/12 0·55/11/12 0·63/11/8

39–40. *Obv.* Legend off-flan. 2 specimens
Rev. Identical with nos. 30–8.
0·40/9/6 0·52/10/1 **Pl. VII. 5**

41. *Obv.* Legend off-flan, of similar style as nos. 39–40. 1 specimen
Rev. Same type as nos. 1–40, similar style.
0·88/11/11 **Pl. VII. 6**

42–6. *Obv.* Legend off-flan. 5 specimens
Rev.]-ΛCV, female figure stg. l., in the attitude of Salus or Laetitia, holding (?) and forked baton instead of anchor.
0·27/9/9 0·36/9/12 0·59/9/12 **Pl. VII. 7**
0·32/9/12 0·48/9/1

47. *Obv.* IΛΛPC[, very close in style to nos. 42–6. 1 specimen
Rev. Identical with nos. 42–6.
0·51/10/1 **Pl. VII. 8**

48–53. *Obv.* Identical with nos. 42–6. 6 specimens
Rev. PAX–ACV, Pax stg. l., holding branch and forked baton instead of sceptre.
0·36/10×12/12 0·44/10/10 0·49/10/8 **Pl. VII. 9**
0·38/11/6 0·48/10×12/11 0·57/12/8

54–8. *Obv.* Identical with nos. 42–6 and 48–53. 5 specimens
Rev. PΛX–CΛV, Salus stg. l., r. hand over altar, l. holding forked baton.
0·38/9/12 0·51/11/4 0·68/11/8 **Pl. VII. 10**
0·39/9/12 0·57/12/9

59. *Obv.* Identical with no. 47. 1 specimen
Rev. Identical with nos. 54–8.
0·74/11/6 **Pl. VII. 11**

60–1. *Obv.*]IΛΛ[, style similar to nos. 42–59. 2 specimens
Rev. IΛ[]–ΛCV, as nos. 54–9.
0·73/11/10 1·05/10/7 **Pl. VII. 12**

62. *Obv.* Legend off-flan, cf. style of nos. 60–1. 1 specimen
Rev. PΛ[, Pax stg. l., holding branch (off-flan) and forked baton.
0·88/10/6 **Pl. VII. 13**

63. *Obv.* Legend off-flan, style similar to nos. 60–2. 1 specimen
Rev.]-XΛCV, Salus stg. l., feeding serpent coiled around altar (off-flan) and holding forked baton.
0·52/10/6 **Pl. VII. 14**

64. *Obv.* Identical with no. 63. 1 specimen
Rev. VI[, Salus as on no. 63, but attribute in l. hand off-flan.
0·85/13/7 **Pl. VII. 15**

65. *Obv.*]IΛ[, style similar to nos. 63–4. 1 specimen
Rev. Pax (?) stg. l., holding (?) and sceptre.
0·52/12/8 **Pl. VII. 16**

66–7. *Obv.*]ΛVC[. 2 specimens
Rev. ITT-XΛ, female figure stg. l., holding forked baton in l. hand.
0·52/9/9 0·59/10/1 **Pl. VII. 17**

68–73. *Obv.*]VSΛCVT[(Tetricus II). 6 specimens
Rev. Identical with nos. 66–7.
0·34/11/9 0·61/10/3 0·73/11/2 **Pl. VII. 18**
0·51/10/12 0·67/11/3 0·79/11/3

74. *Obv.* Identical with nos. 68–73. 1 specimen
Rev. Similar to nos. 66–73.
0·53/10/10 **Pl. VII. 19**

75. *Obv.* Identical with nos. 68–74. 1 specimen
Rev. P[]CV, Pax (?) stg. l., holding (?) and anchor (?).
0·74/13/9 **Pl. VII. 20**

76. *Obv.* Identical with nos. 68–75. 1 specimen
Rev. Female figure stg. l., holding baton and (?).
0·39/10×11/6 **Pl. VII. 21**

77–82. *Obv.*]RICVSΛCV (Tetricus I). 6 specimens
Rev.]IV[, Pax stg. l., as on nos. 48–53.
0·28/9×11/12 0·52/10/5 0·62/10/6 **Pl. VII. 22**
0·49/10/1 0·55/10/3 0·92/10/3

83–4. *Obv.* Legend off-flan. 2 specimens
Rev. II–I–I–I, Laetitia stg. l., holding wreath, l. hand resting upon sceptre (!)
0·70/11/12 0·72/10/6 **Pl. VII. 23**

85. *Obv.* Identical with nos. 83–4. 1 specimen
Rev. Female figure (Pax?) stg. l., holding (?) and sceptre.
0·53/10/12 **Pl. VII. 24**

86–7. *Obv.* Legend off-flan. 2 specimens
Rev.]⊥IVI, female figure stg. r., holding broken sceptre and (?).
0·49/10/12 0·62/11/1 **Pl. VII. 25**

88. *Obv.* Identical with nos. 86–7. 1 specimen
Rev. VIIV[, Pax (?) stg. l., holding branch (?) and (?).
0·94/10×12/12 **Pl. VII. 26**

89. *Obv.* Identical with nos. 86–8. 1 specimen
Rev. Stylised figure.
0·53/11/5 **Pl. VII. 27**

90–1. *Obv.*]CVSA[(Tetricus I). 2 specimens
Rev.]AAV, very stylized figure.
0·90/13/1 1·22/12/6 **Pl. VII, 28**

92–4. *Obv.* IAAP[]CVSI[(Tetricus I). 3 specimens
Rev. V!T-ORA, Victory stg. facing, holding wreath and palm.
0·78/10/3 0·82/10×12/10 0·87/12/12 **Pl. VII. 29**

95–9. *Obv.* IA[]VTTTITR[(Tetricus I). 5 specimens
Rev. Ↄ-A-TIIC, Laetitia stg. l., holding wreath and anchor (?).
0·76/12/2 0·83/11/9 1·06/11/10 **Pl. VII. 30**
0·80/13/9 0·86/12/2

100–1. *Obv.* V[. 2 specimens
Rev. Two figures *vis-à-vis*, one holding Victory (?). Probably copy of an antoninianus after the reform of Aurelian. The letters VV in the exergue probably imitate the mark of value XX (or similar).
0·39/10/1 0·44/10/1 **Pl. VII. 31**

102. *Obv.* Legend effaced. 1 specimen
Rev.]AVC, Disjointed female figure.
0·88/12×15/6 **Pl. VII. 32**

103–4. *Obv.* ↃII (Tetricus II?). 2 specimens
Rev. Similar to no. 102.
0·55/11/12 0·72/10×11/6 **Pl. VII. 33**

105–7. *Obv.* oo![]!ΔvIN. 3 specimens
Rev. Female figure stg. l., holding two ensigns (?) (Fides Militum ?).
0·52/11/3 0·53/10/1 0·74/10/3 **Pl. VII. 34**

108–11. *Obv.* Identical with nos. 105–7. 4 specimens
Rev.]VV[, sacrificial implements.
0·40/10/12 0·65/11/4 **Pl. VII. 35**
0·46/11/12 0·93/10/4

112. *Obv.* Identical with nos. 105–11. 1 specimen
Rev. Female figure (?) holding trident.
0·92/13/12 **Pl. VII. 36**

113. *Obv.*]T!I∃ICVS![(Tetricus I). 1 specimen
Rev. IIC[, female figure stg. l., extending both forearms.
1·30/12/10 **Pl. VII. 37**

114. *Obv.* Legend off-flan. 1 specimen
Rev. I[]∾[]C, Pax (?) stg. l., holding (?) and sceptre.
1·27/12/3 **Pl. VII. 38**

115. *Obv.* Legend off-flan. 1 specimen
Rev. Ↄ | , Aequitas or Moneta stg. l., holding scales; l. arm off flan.
0·85/11/7 **Pl. VII. 39**

116. *Obv.* Legend illegible. 1 specimen
Rev.]CO∩-O[, Victory r., holding sceptre (?) and wreath.
1·03/12/12 **Pl. VII. 40**

117. *Obv.*]IVVV[. 1 specimen
Rev. Anepigraphic; male figure stg. facing, head r., stylized.
0·58/13/12 **Pl. VII. 41**

118. *Obv.* Identical with no. 117. 1 specimen
Rev. Anepigraphic; similar to no. 117, possibly from the same but re-engraved die.
0·90/11/3 **Pl. VII. 42**

119. *Obv.*]ICVS (Tetricus II). 1 specimen
Rev. Uncertain.
0·74/10/5 **Pl. VII. 43**

120. *Obv.* Identical with no. 119. 1 specimen
Rev. Female figure, probably Victory, stg. or walking l., holding wreath and (?).
0·69/10/10 **Pl. VII. 44**

121. *Obv.* Illegible. 1 specimen
Rev. Identical with no. 120.
0·60/12/12 **Pl. VII. 45**

122. *Obv.* Anepigraphic. 1 specimen
Rev. Anepigraphic; stiff figure, extremely stylized; chisel-cut flan.
0·31/11/10 **Pl. VII. 46**

123. *Obv.* Anepigraphic; very close in style to no. 122. 1 specimen
Rev. Anepigraphic; probably identical with no. 122.
0·60/10×11/10 **Pl. VII. 47**

124. *Obv.* Anepigraphic; similar to no. 123. 1 specimen
Rev. Traces of legend?; female figure, stylized, walking.
0·69/10×12/10 **Pl. VII. 48**

125. *Obv.*]VV\. 1 specimen
Rev. Doe (?) walking l. Probably imitated from a reverse type of Gallienus.
0·46/10/12 **Pl. VIII. 1**

126. *Obv.* Identical with no. 125. 1 specimen
Rev. Anepigraphic. Stylized altar (?).
0·61/11/12 **Pl. VIII. 2**

127–31. *Obv.* [⌣⌣] (Claudius II). 5 specimens
Rev.]V-V, lighted altar.
0·31/9/9 0·85/10/12 0·95/11/12 **Pl. VIII. 3**
0·77/12/9 0·89/11/12

132–3. *Obv.*]OIO, similar style to nos. 127–31 (Claudius II). 2 specimens
Rev. Identical with nos. 127–31.
0·84/10×12/5 0·99/10/2 **Pl. VIII. 4**

PART II

134. Augustus and Agrippa. Cast copy of the As struck at Colonia Nemausus (Nîmes), probably added to the hoard for the metal value (very worn specimen) **[Pl. VIII. 5]**.

135–6 (and I, 115). Aequitas (or Moneta) stg. l., holding balance and cornucopiae (1); holding balance and sceptre (1) **[Pl. VIII. 6]**; holding balance and (?) (1) **[Pl. VII. 39]**.

137. Divinity (male), naked but for drapery on shoulders, advancing l., holding (?) and sceptre (? Jupiter) (1) **[Pl. VIII. 7]**.

138. Divinity (male) or emperor, helmeted, cuirassed, stg. l., holding (?) and sceptre (1) **[Pl. VIII. 8]**.

139–40. Felicitas stg. l., holding caduceus and cornucopiae (2) **[Pl. VIII. 9]**.

141–2 (and I, 105–7). Fides Militum (or Exercitus) stg. l., holding two ensigns or ensign and sceptre (3) **[Pls. VII. 34; VIII. 10]**.

143–5. Hilaritas stg. l., holding palm and cornucopiae (1) **[Pl. VIII. 11]**; holding palm and spear (1); holding palm and (?) (1).

(I, 1). Jupiter stg. facing, head r., holding sceptre and thunderbolt (1) **[Pl. VII. 1]**.

146–53 (and I, 83–4, 95–9). Laetitia stg. l., holding wreath, l. hand resting on anchor or baton (6) **[Pl. VIII. 12]**; similar, anchor not clearly visible (1) **[Pl. VII. 30]**; similar, but stg. r. (1); stg. l., holding wreath, l. hand resting on sceptre (1) **[Pl. VII. 23]**; similar, but l. arm curved, ending in cornucopiae (1) **[Pl. VIII. 13]**.

154–5. Mars Victor, hurrying r., holding spear, trophy not visible (1) **[Pl. VIII. 14]**; similar, but extremely stylized (1).

156–79 (and I, 48–53, 62, 65, 75, 77–82, 85, 88, 114). Pax stg. l., holding branch and sceptre, one of these attributes being sometimes off-flan (17) **[Pl. VIII. 15, 16]**; do., but l. hand resting on sceptre (1); holding (?) and sceptre (3) **[Pl. VII. 16, 24, 38]**; holding branch and

(?) (1) [**Pl. VII. 26**]; holding (?) and anchor (?) (1) [**Pl. VII. 20**]; holding branch and forked baton (3) [**Pl. VII. 9, 13, 22**]; holding branch and cornucopiae (1); holding (?) and transverse sceptre (1); holding branch in r. hand (1) [**Pl. VIII. 17**]; stg. r., holding sceptre and branch (1); stg. r., holding flower (?) and sceptre (1).

180. Pietas stg. l., holding r. hand over altar (1) [**Pl. VIII. 18**].

181. Providentia stg. l., r. hand resting on baton, l. holding cornucopiae (1) [**Pl. VIII. 19**].

182–97 (and I, 54–61, 63–4). Salus stg. l., holding serpent in arms (3) [**Pl. VIII. 20**]; r. arm outstretched, below, altar and serpent, l. holding sceptre (1) [**Pl. VIII. 21**]; do., but very stylized (1) [**Pl. VIII. 22**]; do., but serpent not visible (1); do., but inverted scene (1) [**Pl. VIII. 23**]; stg. l., holding patera over altar, and anchor (4); do., but altar off-flan (1) [**Pl. VII. 14**]; do., but attribute in l. hand off-flan (1) [**Pl. VII. 15**]; stg. l., holding r. hand over altar, l. holding forked baton (2) [**Pl. VII. 10–12**]; deformed types (5).

198–205. Sol advancing l., raising r. arm, l. holding whip (4) [**Pl. VIII. 24**]; do., with $\underline{X|\ }$ (2) [**Pl. VIII. 25**]; do. but holding globe in l. hand (1); do., but attribute in l. hand off-flan (1).

206–14. Spes advancing l., holding flower and raising robe (5); do. but holding wreath instead of flower (1) [**Pl. VIII. 26**]; deformed types (3) [**Pl. VIII. 27**].

215–16. Venus stg. l., holding apple and sceptre (2) [**Pl. VIII. 28**].

217–32 (and I, 92–4, 116, 120, 121). Victoria stg. l., holding wreath and sceptre (1); stg. facing or l., holding wreath and palm (10) [**Pls. VII. 29; VIII. 29, 30**]; advancing r., holding sceptre (?) and wreath (1) [**Pl. VII. 40**]; advancing r., holding palm and wreath (1); stg. r., holding palm and wreath (1), do., deformed types (3) [**Pl. VIII. 31**]; advancing l., holding wreath and (?) (1) [**Pl. VII. 44**]; advancing l., attributes not visible, at foot captive (1).

233–51 (and I, 6–41). Virtus helmeted, drapery on shoulders, stg. r., holding spear, left hand resting upon baton (instead of shield) (3) [**Pl. VII. 3–6**]; r. hand resting on shield, l. holding spear (1); do., but stg. l. (2); do., but stg. facing (9) [**Pl. VIII. 32**];[1] do., deformed types (6); stg. l., holding branch and sceptre or spear (1).

[1] For the style of the reverse-type, cf. P. V. Hill, 'A Hoard of Barbarous Radiates from East Cornwall', *NC* 1952, Pl. VIII. 11–13.

252 (I, 125). Volcanus (?) standing facing in tetrastyle temple (1) **[Pl. VIII. 33]**. Doe (?) walking l. (1) **[Pl. VIII. 1]**. Probably copied from an antoninianus of Gallienus.

253. Eagle, wings spread (1) **[Pl. VIII. 34]**.

254–9 (and I, 126–33). Altar, lighted, divided in four quarters, each containing one globule (1); plain, one globule in centre (1); stylized $\frac{\perp}{XX}$, cf. *RIC* v, 1, Claudius II, 262 (1) **[Pl. VIII. 35]**; do., deformed types (5) **[Pl. VIII. 2–4]**.

260–8 (and I, 108–11). Sacrificial implements (4) **[Pl. VII. 35]**; vase alone (6) **[Pl. VIII. 36]**.

UNCERTAIN PERSONIFICATIONS, MOSTLY FEMALE

(Classification according to attributes)

269–72. Altar, female figure stg. by. Probably copied from Pietas or Salus types (4).

273–80. Anchor (8). Probably imitated from Laetitia or Salus types.

281–3 (and I, 42–7, 66–74, 76). Baton, plain or forked (7) **[Pl. VII. 7, 17, 18, 19, 21]**.

284–91. Cornucopiae (8).

292. Patera (1).

293–328 (and I, 2–5, 86–7). Sceptre (38).

329–32. Serpent, l. arm ending in (4).

333–40. Spear (8)

341–2 (and I, 112). Trident (deformation of caduceus ?) (3) **[Pls. VII. 36; VIII. 38]**.

343–5. Wreath (3).

(I, 100–1). Two figures *vis-à-vis*, one holding Victory? (1) **[Pl. VII. 31]**.

346–466. Attributes are missing or uncertain (131) **[Pls. VII. 27, 28, 32, 33, 37, 41–3, 46–8; VIII. 39–48]**.

467. Small fragment.

468. Incuse reverse (brockage).

469–70. Blanks (2).

SUMMARY OF REVERSE TYPES

	Number of specimens	*Number of dies* Obv.	Rev.
Augustus and Agrippa	1	1	1
Aequitas (or Moneta)	3	3	3
Divinity, uncertain	1	1	1
Divinity, or emperor	1	1	1
Felicitas	2	2	2
Fides Militum (or Exercitus)	5	3	3
Hilaritas	3	3	3
Jupiter	1	1	1
Laetitia	15	10	10
Mars Victor	2	2	2
Pax	42	31	31
Pietas	1	1	1
Providentia	1	1	1
Salus	26	21	20
Sol	8	8	8
Spes	9	9	9
Venus	2	2	2
Victoria	22	20	19
Virtus	55	23	22
Volcanus (?)	1	1	1
Doe (?)	1	1	1
Eagle	1	1	1
Altar	14	9	8
Sacrificial implements	13	10	10
UNCERTAIN PERSONIFICATIONS			
Altar, female figure stg. by	4	4	4
Anchor	8	8	8
Baton	19	7	7
Cornucopiae	8	8	8
Patera	1	1	1
Sceptre	42	38	38
Serpent, l. arm ending in	4	4	4
Spear	8	8	8
Trident	3	3	3
Wreath	3	3	3
Two figures *vis-à-vis*	2	1	1
Attributes missing	134	131	131
Small fragment	1	1	1
Incuse reverse (brockage)	1	1	–
Blanks	2	–	–
	470		

CONSTANTINE'S *DIES IMPERII* AND *QUINQUENNALIA* IN THE LIGHT OF THE EARLY SOLIDI OF TRIER

By PATRICK BRUUN

[SEE PLATES IX–X]

THE date of the *dies imperii* of Constantine the Great has been the subject of long discussions. The documentary evidence shows that he did not, in his early years as ruler in Gaul and Britain, consider 25 July 306, when his father's soldiers acclaimed him Constantius' successor as his *natalis imperii*, and the point of departure of his regnal years. Since the publication of a paper by William Seston in 1937,[1] containing an examination of all the pertinent epigraphical evidence, the date 31 March 307 has generally been accepted as his imperial birthday, the day when he assumed the title of Augustus.

The reason for dating Constantine's *dies imperii* to 31 March 307 was, above all, the fact that certain inscriptions indicated that there was a difference of one or two units with regard to Constantine's tribunician powers and his imperial salutations.[2] Though tribunician powers were conferred for the first time on Constantine the day he was acclaimed successor of his father Constantius,[3] and obviously annually on 10 December thereafter,[4] the conferment of imperial powers necessarily followed a different pattern, quite apart from the fact that imperial powers were renewed annually on the emperor's *dies imperii*. Seston had concluded that, despite the fact that Constantine in reality succeeded his father on 25 July, the 31 March was adopted as his *dies imperii*; on that day he married Fausta, daughter of Maximian Herculius, and assumed the rank and title of

[1] 'Recherches sur la chronologie du règne de Constantin le Grand', *REA* 1937, 197–218.

[2] Edict of Sardica, 9 June 311, *Année épigraphique* 1937, no. 232 with TRP VII IMP VI COS, and *CIL* viii, 18905; 23897 = Dessau 8941 with TRP IX IMP VII COS III.

[3] 25 July 306, cf. 'Consularia Constantinopolitana', *Chronica Minora* i, 231.

[4] Lafaurie in 'Remarques sur les dates de quelques inscriptions du début du IVe siècle', *Comptes rendus, Acad. des Inscr. & Belles-Lettres* (*CRAI*) 1965, 195 f., and *Mélanges d'arch. et histoire offerts à André Piganiol*, École Pratique des Hautes Études—VIe Section, Centre de recherches historiques, 1966, 799. with comments of Piganiol, *CRAI* 1965, p. 210.

Augustus. The exact date had been suggested by an entry in the Fasti of Furius Filocalus, N·DIVI·CONSTANTINI (*CIL* i, 260) and Polemius Silvius, 'natalis Constantini' (*CIL* i, 261). With reference to Filocalus' 'Natales Caesarum'[1] Mommsen amended and corrected this to 'natalis Constanti(i).[2] As the coins show that Constantine immediately after the death of his father avoided the title of Augustus, naming himself Caesar, Seston[3] connected the second imperial salutation with Constantine's adoption of the title Augustus ('Caesari additum nomen imperatoris'),[4] which according to the evidence of the panegyrist coincided with his marriage to Fausta. The marriage took place, as the panegyrist shows, in the presence of Maximian, and must therefore, with regard to the general political development, particularly in Italy, be referred to 307. To Seston[5] the entries of Filocalus and Silvius consequently offered a natural solution.

Numismatic evidence has, however, shown that Constantine's elevation to the rank of Augustus cannot have taken place in spring 307.[6] Recently, however, Lafaurie in a renewed analysis of the evidence of the inscriptions[7] seems to have succeeded in establishing this date as 25 December 307, thereby proving the correctness of Mommsen's amendment, the date of Constantine's second imperial salutations, and the day when the alliance between Maximian and Constantine was solemnized through Constantine's marriage with Fausta.

As the exact date of the renewal of the imperial salutations is of fundamental importance to the subsequent attempt to date certain series of Constantinian coins, I propose to sum up Lafaurie's chief arguments below before turning my attention to the coins.

The three facets of ruling power frequently recorded in the inscriptions are the tribunician powers, for the first time conferred upon a new ruler on the day of his acclamation, and subsequently on each 10 December; the consulships, the first of which was assumed by a newly nominated emperor on 1 January following his acclamation;

[1] *CIL* i, 255, where the *natalis* of Constantius is given as 25 March and that of Constantine as 27 February.

[2] Cf. *CIL* i, 301 f.; the correction is supported by Degrassi, *Inscriptiones Italiae* xiii, 433.

[3] 202.

[4] Paneg. vi, 7 ed. Galletier.

[5] 200.

[6] Particularly P. Strauss, 'Les Monnaies divisionnaires de Trèves après la réforme de Dioclétien', *RN* 1954, 33 ff.; J. P. C. Kent, 'The Pattern of Bronze Coinage under Constantine I', *NC* 1957, cf. the Appendix: The date at which Constantine I became Augustus, 74–7; J.-P. Callu, *Genio Populi Romani*, Paris 1960, 77, the latter actually suggesting November 307.

[7] *CRAI* 1965, 192–210, and Mélanges Piganiol, 795–806.

and his imperial powers, his *imperium maius*. The day when the imperial powers were conferred upon the ruler was his *dies imperii* or *natalis imperii*. Annually, on the *dies imperii*, the number of his imperial salutations was augmented by one.

The inscriptions studied by Lafaurie offer no problems with regard to the tribunician powers or the consulships; the controversial point is constituted by the imperial salutations. When endeavouring to establish the date of the *dies imperii*, it is thus possible to part from the fact that Constantine's computation of tribunician powers started with his acclamation 25 July 306 at York, and that these powers were in the sequel renewed each 10 December, for the first time in 306. The count of his tribunician powers is therefore as follows: I 25 July 306, II 10 December 306, III 10 December 307, and then regularly from 10 December in the following years, IV in 308, V in 309, VI in 310, VII in 311, VIII in 312, IX in 313, X in 314, and XI in 315.

The consulships of Constantine have been established without ambiguity, viz. I in 307 (in the West), II in 312, III in 313, and IV in 315.

Thus there remains the problem of the imperial salutations.

Three inscriptions are particularly illuminating:

1. *CIL* viii, 18905, recording the dates TR P IX IMP VII COS III. which with reference to the tribunician powers must be dated 10 December 313, or later, and which because of the consular date must be earlier than 1 January 315.

2. *CIL* viii, 10064, recording the dates TR P IX CONSVL (*sic*) VIII COS III DES IIII (here CONSVL obviously is a slip for IMP). The date is 10 December 313 or later according to the tribunician date, and shortly before New Year 315, because the emperor is noted as consul designate.

3. *CIL* ix, 6038, recording IMP IX COS III. Also in this case the *terminus ante* because of the consulship is New Year 315.

The inscriptions show that after 10 December 313 and before 1 January 315 Constantine received two imperial acclamations, his eighth and his ninth, one in the period 10 December 313–9 December 314, another in the period 10 December 314–31 December 314. Consequently, his *dies imperii*, the day when he assumed the title of Augustus, must lie within this span of twenty-one days. It can be added that the first two inscriptions above, both with TR P IX but

with VII and VIII imperial acclamations, indicate that the *imperium maius* was conferred upon the emperor at a later date than the tribunician powers. If we count backwards from Constantine's second imperial salutation, his first as Augustus, must fall in the period 10 December–31 December 307.

Within this period of twenty-one days Lafaurie singles out the 25 December, the *Dies Solis* as the most likely day with particular reference to the panegyrist (Paneg. Latini VI, 1, p. 16, ed. Galletier) connecting Constantine's elevation with the ascendance of Sol, as have other scholars before him (Lafaurie, loc. cit.). The psychological probabilities are in favour of this suggestion, which will be accepted below, but for the discussion of the coins it is of little consequence on which of the days between 10 and 31 December Constantine received his imperial salutations. Much more important is the fact that the computation of his regnal years did not, in the beginning of his reign, have the 25 July 306, his *dies Caesaris*, as a point of departure, but a day in December 307, which was considered his real *dies imperii* for some time to come.[1] Only at a later stage, when his rule over the western empire was established, did he venture to identify his *dies Caesaris* with his *dies imperii*. But the fact that Constantine waited until the end of 307 (and thus let the first anniversary of his rule pass unnoticed) to renew his imperial powers shows how awkward the emperor must have felt his own position to be in the beginning, even if Galerius seems to have accepted him temporarily to start with,[2] probably in the same way as Carausius once had been accepted *de facto* by the tetrarchic rulers.[3]

I propose now, with the aid of the coin material, to show that the reckoning of the regnal years and, consequently, the celebrations of Constantine's *quinquennalia* had one of the days 10–31 December 307 as the point of departure. Such a study of the coinage has now become possible after the long-awaited publication of *Roman Imperial Coinage* (*RIC*) VI by Dr. Sutherland. Even a superficial glance at the pages of this monumental volume reveals the extent of the service the author has rendered to the study of the Late Empire. The enormous amount of material collected and classified in this volume

[1] Such a computation was not entirely alien to the tetrarchic period, despite H. Stern, *Le Calendrier de 354*, 378 (Paris, 1953. Inst. Franç. d'Arch. de Beyrouth, *Bibl. Arch. et Hist.* 55), cf. Seston, op. cit. 201 with reference to Aur. Vict. *De Caes.* 40: 'Huic (Galerio) quinquennii imperium Constantio annuum fuit, cum sane uterque potentiam Caesarum annos tredecim gessissent.'

[2] Lact. *De mortibus* 25, 1–5; Zosimus ii, 9; Paneg. vii, 8, 2.

[3] Baynes, *CAH* xii, 331.

shows that it would be well-nigh impossible to utilize properly the coin material of the tetrarchic period—for which no comprehensive surveys have been available before—without the solid and fundamental work now presented to the world of science. Dr. Sutherland in his Preface modestly regards his work as 'a beginning rather than an ending' which should 'serve as a basis for others to build on more fully and more securely'. When I venture to differ below on certain points from the views expressed by Dr. Sutherland, I do it in full awareness of the fact that, without his volume, this study would have been impossible.

The subsequent analysis of the early Treveran coins of the Constantinian period aims in the first place at establishing the date of two gold types, VBIQVE VICTORES with obverses of both Licinius and Maximinus, and VOTIS V MVLTIS X, obviously struck in conjunction with Constantine's *quinquennalia*. First I propose to show that the earliest solidi of Trier were of the type VBIQVE VICTOR **[Pl. IX. 3]**, die-linked with solidi of the type PRINCIPI IVVENTVTIS **[Pl. IX. 2]** and that these two types constituted the first solidus group of Trier, preceding both the VBIQVE VICTORES **[Pl. X. 12–15]** solidi (die-linked with solidi of the type IOVI CONSERVATORI AVGG **[Pl. X. 9–11]**, all with obverses of Licinius) and the group of solidi to which the type VOTIS V MVLTIS X **[Pl. X. 5–8]** belonged, all exclusively with obverses of Constantine. A die study will demonstrate the coherence of the nine types of the latter group, below named the Vota group.

In order to establish (*a*) the absolute date of the Vota group, and (*b*) the relationship between the Vota group and the VBIQVE VICTORES—IOVI CONSERVATORI AVGG coins, where only obverses of Licinius and Maximinus appear, a comparison of the imperial iconography on gold and bronze coins is indicated. This will suggest, I think, that the fourth reduction of the follis to $\frac{1}{72}$ of a pound coincided with the solidus reform, i.e. the lowering of the weight of the standard gold coin to $\frac{1}{72}$ of a pound. At this juncture would the VBIQVE VICTOR solidi have been struck; consequently, both the Vota group of solidi and the VBIQVE VICTORES group would belong to a later phase of coining, coinciding with the *quinquennalia*, as indicated by the Vota solidus. It follows that Constantine cannot have used his *dies Caesaris* (25 July 306) as a point of departure for his reckoning of his regnal years, but the day he assumed the title of Augustus, 25 December 307 as suggested by

Lafaurie. Consequently, our analysis of the gold coinage will indicate that the *quinquennalia* were celebrated in the period 25 December 311–24 December 312.

The clearly defined chronological landmarks of the coinage are exceedingly few. True, we have vota coins in gold struck at Trier in connection with the *quinquennalia* (VOTIS V MVLTIS X/VICTORIA AVG, the obverse legend of which, CONSTANTINVS P F AVG, shows that they cannot have been struck on Constantine's accession in 306, when he was named Caesar and consequently the VOTA V on the reverse are *soluta*, the VOTA X *suscepta*), but our problem is to establish the date of these coins and, consequently, of the *quinquennalia*. Other suggestions of when certain gold coins were struck are offered by the appearance of other rulers on the obverses of the gold coins. They reflect Constantine's attitude towards the emperors in other parts of the empire, and in addition their titles help us to establish certain chronological *termini*. Unfortunately they occur but rarely, and the only ones met with on the Treveran solidi are Maximinus Daza as Augustus (*terminus post* mid 310) and Licinius as Augustus (*terminus post* end of 308)[1] on coins of the type VBIQVE VICTORES (Licinius and Daza) and IOVI CONSERVATORI AVGG (Licinius).

The consular *Fasti* give certain indications of Constantine's attitude towards his fellow rulers. In the West Constantine held his first consulship, together with Herculius, in 307,[2] and thus refused to recognize the consulships of the East (Severus and Maximinus) and of Italy (Herculius and Maximinus).[3] In 308 the *Fasti consulares* of the Chronographer of A.D. 354 has an entry 'decies et Maximiano VII',[4] and 'Consularia Constantinopolitana item decies et Maximiano',[5] and the corresponding passage of the Chronicon Paschale (ibid.) reads *ὑπ. πάλιν δεκάτου καὶ Μαξιμιανοῦ Γαλερίου τὸ ξ'*. This corresponds to the first consulship of Maxentius and Romulus in Rome. *Decies*, the tenth consulship, has generally been thought to be Diocletian's,[6] though it could in the West refer alternatively to the tenth consulship of Herculius and in the East to that of Diocletian.

[1] M. Lafaurie, *Mélanges Piganiol* 802, has established that, though Licinius' nomination was an outcome of the conference of Carnuntum of 11 November 308, the formal *dies imperii* has to fall in the time 26–31 December 308.

[2] *Chron. Min.* i, 60.

[3] 'Chronograph of 354', *Chron. Min.* i, 66, cf. Degrassi, *I fasti consulares* 77.

[4] *Chron. Min.* i, 60, 67.

[5] Ibid. 231.

[6] Cf. Degrassi, op. cit. 78; Mommsen, *Chron. Min.* i, 38.

The important point is, however, that Constantine accepted Galerius as consul, and in the next year was rewarded with his first consulship in the East as colleague of Licinius,[1] whereas the *Fasti* in the West record post-consulates for the years 309–10. In 311 the West, except for Italy, recognizes the eighth consulship of Galerius, but not the consulship of Maximinus.[1] Finally, in 312, the universally accepted consulships are the second of Constantine and Licinius.[1]

We may say, then, that Constantine's refusal to accept Daza's consulship of 311 suggests that we could scarcely expect to encounter Maximinus Augustus on the obverses of the West earlier than mid 311. This coincides with an important criterion of co-operation between Constantine and Licinius, the engagement of Constantine's sister Constantia to Licinius, which must have taken place after the death of Galerius and after Licinius' refusal to marry Galeria Valeria, approximately in mid 311.[2]

Keeping in mind these facts regarding the co-operation between Constantine on the one hand, and Licinius and Daza on the other, we proceed next to decide how to place the gold coins of the type VBIQVE VICTORES within the framework of the early solidi of Trier. This reverse is the only one for which obverses of both Daza and Licinius are employed. The difficulty in relating the coins of this type to the rest of the solidi is that no obverses of Constantine are known.[3] We have numerous coins of Licinius, compared with a single coin of Daza. Varieties of the reverse and of the break of the reverse legend point to a substantial issue.

Before proceeding to an interpretation of the issue VBIQVE VICTORES, we should consider the other early solidus types of Trier. They constitute a homogeneous group of small module (diameter 17 mm.) and thick flan, clearly different from the solidi struck after Constantine's return from Italy in 313 (*RIC* vii, nos. 12–37). Within this group of solidi occurs the reverse legend VBIQVE VICTOR **[Pl. IX. 3]**, with the same imagery as VBIQVE VICTORES, issued with obverses of both Licinius and Daza **[Pl. X. 12–15]**. VBIQVE VICTOR seems to reflect the political atmosphere of the period, when Constantine did not co-operate with

[1] Degrassi, loc. cit.

[2] Andreotti, Ruggiero, *Diz. Epigr.* iv, fasc. 31–3, 992 s.v. Licinius, cf. Lact. *De mortibus* 43, 2 as compared with 50, 5.

[3] *RIC* vi, 817*a* with reference to Cologne and the catalogue Ponton d'Amécourt, Rollin and Feuardent 1887, 685 is in error; both these coins are of the reverse VBIQVE VICTOR.

his imperial colleagues in the East. VBIQVE VICTOR is therefore probably earlier than VBIQVE VICTORES, and this is in fact shown by the discovery of a solidus of this type marked TR,[1] the mark of the Treveran aurei of Constantius Augustus and Constantine Caesar (*RIC* vi, 615–34). This is surely the earliest solidus known (not in *RIC* vi), and the only one of the mark TR; all other, and later, solidi of the type VBIQVE VICTOR are marked PTR as are the other solidi of Trier up to A.D. 326.[2]

The solidi of the type VBIQVE VICTOR furnish us with a point of departure for a close study of the Constantinian obverses which alone seem to enable us to assess the relative chronology of the early Treveran solidi. They have two characteristics which immediately leap to the eye. All obverse legends are broken CONSTAN-TINVS P F AVG (N-T) and the left ribbon of the laurel wreath is bent upwards at a very sharp angle. At times the angle is so sharp that the left ribbon resembles a single string. Conventionally the ribbon bent at a sharp angle will be indicated ⟩⟨ regardless of minor varieties.

These two features of the VBIQVE VICTOR reverses are clearly independent of one another, the one is not a function of the other. The break of the obverse legend forms part of the obverse design as such. It is a part of the composition of the obverse which comprises two elements, legend and portrait, whereas the execution of the wreath strings can be regarded as a part of the artistic conception of the imperial effigy.

On the early solidi of Trier, i.e. in the group under consideration, we encounter only one other obverse break, CONSTANTI-NVS P F AVG (I-N), and one other fundamentally different way of designing the wreath strings. This can be represented as ⟩⟨, i.e. the left ribbon, or the backward drawn string, is turned upward in a elegant curve **[Pl. IX. 5, 8, 15; Pl. X. 2–4, 7–8]**. Here, too, we have minor varieties of design, though the basic difference in the fashioning of the wreath strings as compared with the former group, characterized by the sharp angle, appears to be the soft curving of the ribbon.

In a survey of the entire coin material, of all the solidus types connected with obverses of Constantine, the employment of obverse

[1] Mazzini 565 in vol. v of the catalogue of the Mazzini collection published by E. Mazzini, Turin, 1958.
[2] *RIC* vii, 147.

breaks and wreath tie design is as follows (the mint-mark is PTR unless otherwise indicated, the numbers refer to *RIC* vi, Trier):

810 FELICITAS REIPVBLICAE obv. break	N-T ⟨ and ⟨	I-N ⟨ •
811 GAVDIVM REIPVBLICAE	N-T ⟨ and ⟨	I-N ⟨
812 GLORIA EXERCITVS GALL	N-T ⟨	I-N ⟨ and ⟨
814 PRINCIPI IVVENTVTIS	N-T ⟨	
815 SPQR OPTIMO PRINCIPI	N-T ⟨ and ⟨	I-N ⟨
— VBIQVE VICTOR (m.m. TR)	N-T ⟨	
816 VBIQVE VICTOR (m.m. PTR)	N-T ⟨	
819 VICTORIA CONSTANTINI AVG	N-T ⟨ and ⟨	I-N ⟨
820 VIRTVS EXERCITVS GALL	N-T ⟨	I-N ⟨
821 VOTIS V MVLTIS X/VICTORIA AVG	N-T ⟨ and ⟨	I-N ⟨

To these should be added the types with ALAMANNIA and FRANCIA in the exergue instead of the mint-mark:[1]

823 GAVDIVM ROMANORVM/ALA-MANNIA	N-T ⟨	I-N ⟨
824 GAVDIVM ROMANORVM/FRANCIA	N-T ⟨ and ⟨	I-N ⟨

This survey reveals a certain pattern. Two types only have exclusively the obverse break N-T and the wreath strings regularly drawn ⟨, namely PRINCIPI IVVENTVTIS and VBIQVE VICTOR [**Pl. IX. 2–3**]. For no single type does I-N occur exclusively, and all obverse legends with I-N are combined with ⟨.[2] This is scarcely fortuitous. I have examined ten to twenty coins of each type (unfortunately many only in photographic reproductions). Therefore, with particular reference to the mint-mark, I venture to conclude that the earliest group of solidi was constituted by:

(i) VBIQVE VICTOR marked TR
(ii) VBIQVE VICTOR marked PTR [**Pl. IX. 3**]
(iii) PRINCIPI IVVENTVTIS marked PTR [**Pl. IX. 2**]

[1] I exclude definitely the large-flan VICTOR OMNIVM GENTIVM (*RIC* vi, 818), which belongs to a later period (cf. *RIC* vii, 28–31).

[2] I know of one exception only, a GLORIA EXERCITVS GALL, *Ars Classica* xvii, 1892 = Hess 194, 956 with the wreath strings even otherwise drawn in a very peculiar way.

regularly with the obverse break N-T and the wreath strings drawn ꝟ. Linked obverse dies show that both types were issued contemporaneously.[1] It should be noted that PRINCIPI IVVENTVTIS in particular represented a prolific issue, as suggested by the variously broken reverse legends. We have unbroken legends and legends broken I-V, V-V, or -VE-. For VBIQVE VICTOR I know only the reverse breaks I-C and -VI-.

The remaining solidi constitute a homogeneous group of coins, the general date of which is indicated by the vota reverse VOTIS V MVLTIS X, the year of Constantine's *quinquennalia*. For the sake of clarity this group will be named the Vota-group.

The coherence of the group is proved by numerous obverse dies, which link the different reverses together. Each of the three obverse varieties (N-T ꝟ), (N-T, ꝟ), and (I-N, ꝟ) show such links. Owing to the comparative scarcity of the material one cannot expect a complete system of linked obverse dies, but every single reverse is combined with at least one other reverse type. On the other hand, I have not been able to find a single obverse die of this group, which would be linked with obverses of the types VBIQVE VICTOR and PRINCIPI IVVENTVTIS. This depends on the fact that both groups represent different types of portraiture, a detail I propose to return to later.

The nine reverse types of the Vota-group are all represented by a number of varieties. A description of the reverses and their varieties with references to the coin material will be given in an Appendix. The nine reverses are, in alphabetical order, preceded by their *RIC* nos.:

1. 810 FELICITAS REIPVBLICAE (varieties *a–g* **[Pl. IX. 4–5]**), 13 coins examined
2. 811 GAVDIVM REIPVBLICAE (varieties *a–f* **[Pl. IX. 6–8]**), 12 coins
3. 823 GAVDIVM ROMANORVM/ALAMANNIA (varieties *a–d* **[Pl. IX. 9]**), 10 coins
4. 824 GAVDIVM ROMANORVM/FRANCIA (varieties *a–i* **[Pl. IX. 10–13]**), 20 coins
5. 812 GLORIA EXERCITVS GALL (varieties *a–e* **[Pl. IX. 14]**), 11 coins

[1] Struck from identical dies are the obverses of VBIQVE VICTOR, Schlessinger 1939, 581 and the coin A. Hess, May 1951, 281 of the same type, and the PRINCIPI IVVENTVTIS, Glendining, December 1929, 560, and further the obverse VBIQVE VICTOR, Hess 1935 (Trau), 3948 and the PRINCIPI IVVENTVTIS, Mazzini 412.

6. 815 SPQR OPTIMO PRINCIPI (varieties *a–d* [**Pl. IX. 15–17**]), 11 coins
7. 819 VICTORIA CONSTANTINI AVG (varieties *a–e* [**Pl. X. 1–2**]), 7 coins
8. 820 VIRTVS EXERCITVS GALL (varieties *a–e* [**Pl. X. 3–4**]), 10 coins
9. 821 VOTIS V MVLTIS X/VICTORIA AVG (varieties *a–f* [**Pl. X. 5–8**]), 19 coins.

The long list of reverse types and varieties in the Appendix (in all fifty differing reverses in a material of not more than 112 coins) shows first of all that the number of varieties recorded for the individual types depends on the number of coins known of each type. Thus our picture of the development of the reverses is necessarily limited, but on the basis of the present material it seems permissible to assume that the two types with identical iconography, those with ALAMANNIA and FRANCIA, respectively, in the exergue, were developed along parallel lines, though the material for the former type is much scarcer than for the latter. The survey further indicates that coins struck from identical reverses are exceedingly scarce, in fact exceptional.

The variations of the obverses are less easily defined except for the break of the obverse legend and the general characteristics of the wreath ties mentioned above. Within each of the main groups of obverses we have a considerable number of die-links. The interesting point is that these obverses, with only a few exceptions, link together different reverses and not, for instance, different varieties of the same reverse type. Within each reverse type we have a wide range of obverse portraits, and each reverse variety is combined with one or more characteristic obverse portraits. This suggests, as far as I can see, two alternative explanations of the organization of the minting. If, as a conclusion of the analysis of the reverses (cf. Appendix), we state that the coins of the Vota-group can be divided into 'compartments' with one variety of each reverse type combined with a certain obverse variety, these 'compartments' could be defined either in terms of space, or in terms of time, or, to be more explicit, the 'compartments' inasmuch as they, at least on the surface, appear to be closed entities, could either represent different workshops (topographical implication) or officinae, or different successive stages of striking (chronological implication).

Before proceeding to an examination of these two possibilities, it

seems appropriate to record the obverse links observed. I propose primarily to group the die-linked coins in accordance with the objective criteria mentioned above, break of obverse legend, and fashioning of the wreath strings. The reverses will be referred to by the numbers and letters used in the list of reverses and their varieties.[1]

Group i (N-T, ꟻ⌊):

1. *Felicitas reipublicae*:

Rev. variety (1*a*) in B[2] **[Pl. IX. 4]** linked with *Gaudium reipublicae* (2*b*) in N **[Pl. IX. 7]**.

Rev. (1*a*) in V (CGT, pl. 4, 15) linked with *SPQR optimo principi* (6*a*) in ANS **[Pl. IX. 17]**.

Rev. (1*a*), Sambon–Canessa 20.5.1905, 10[3] linked with *Gaudium Romanorum/Alamannia* (3*b*), *Ars Classica* viii, 1478, and same type (3*a*) in

[1] The abbreviations of the collections quoted are: ANS = American Numismatic Society Museum, New York; B = Berlin, Staatliche Museen; Bel = Belgrade, National Museum; Br = Brussels, Bibliothèque Royale; C = Copenhagen, the National Museum; Col = Cologne, Römisch Germanisches Museum; DO = Dumbarton Oaks; Fl = Florence, Museo Archeologico; Ha = The Hague, the Royal Coin Cabinet; Hu = the Hunterian Museum, Glasgow; L = London, the British Museum; Len = Leningrad, the Hermitage; Mi = Milan, Castello Sforzesco; Mu = Munich, Staatliche Münzsammlung; N = Naples, Museo Nazionale; Ox = Oxford, the Ashmolean Museum; P = Paris, Bibliothèque Nationale; RT = Rome, Museo delle Terme (Museo Nazionale); RV = Rome, Museo Vaticano; Tr = Trier, Landesmuseum according to the Trier catalogue *Frühchristliche Zeugnisse im Einzugsgebiet von Rhein und Mosel*, Trier, 1965, with reference to the section by Maria R. Alfoldi, 'Münzen des 4. Jahrhunderts mit christlichen Kaiserbildnissen,' 83–97, particularly 87 f. with pl. 66; Tu = Turin, Museo Civico; V = Vienna, Kunsthistorisches Museum.

The coins from the Arras hoard are quoted as Arras; they are recorded and numbered according to Agnes Baldwin Brett in *NC* 1933. The Arras coins by Mrs. Baldwin Brett recorded as belonging to the Newell collection are now incorporated in the ANS collection. The Mazzini coins are recorded in accordance with the catalogue published by E. Mazzini, Milan, 1958 (vol. v) before the collection was dispersed. For Maria R. Alföldi, 'Die constantinische Goldprägung in Trier', *JNG* 1958, 99 ff. the abbreviation CGT is used, for the same author's *Die constantinische Goldprägung*, Mainz, 1963, *CG*. When casts, or photographs of coins or casts, have not been at my disposal, I add a reference to the illustration examined by me, because the uneven and frequently highly unsatisfactory quality of plates often make a die study extremely difficult. A reference to a sale catalogue always presupposes an illustration.

Sale catalogues have been recorded according to dealer.

It is a great pleasure to acknowledge the co-operation and assistance of so many scholars and public collections in the course of this study. Mr. R. A. G. Carson of the British Museum generously made the photo file of the museum accessible to me and had casts made on my request. For casts or photographs I have the privilege of thanking M. Jean Lafaurie, Paris; Dr. C. H. V. Sutherland, Oxford; Miss Anne Robertson, Glasgow; Professor A. Suhle and Mr. H.-D. Schultz, Berlin; Dr. H. Küthmann, Munich; Dr. B. Koch and Dr. H. Jungwirth, Vienna; Dr. O. Mørkholm and Miss A. Kromann, Copenhagen; Dr. A. de Franciscis and Dr. E. Pozzi, Naples; Dr. Anna Fava, Turin; and Mr. J. H. Evers, The Hague. Dr. Mario Ratto, Milan, kindly put at my disposal a rare catalogue from his private library.

[2] Ex *Ars Classica* ii, 1740 = Sotheby, July 1921, 127.

[3] Of the same dies Rollin and Feuardent 1896 (Montagu), 800 = Rollin and Feuardent 1887 (d'Amécourt), 672.

L [**Pl. IX. 9**], and further with *Victoria Constantini aug* (7*b*), Bourgey, Dec. 1908, 570.

2. *Gaudium reipublicae*

Rev. (2*a*) in B [**Pl. IX. 6**] linked with *Votis v multis x/Victoria aug* (9*a*), Schulman, June 1937, 286.[1]

Rev. (2*b*) in N [**Pl. IX. 7**], cf. above, *Felicitas reipublicae* in B [**Pl. IX. 4**].

3. *Gaudium Romanorum/Alamannia*

Rev. (3*a*) in L [**Pl. IX. 9**] linked with *Gaudium Romanorum/Alamannia* (3*b*), *Ars Classica* viii, 1478, and further *Felicitas reipublicae* (1*a*), above.

Rev. (3*b*), cf. preceding entry.

4. *Gaudium Romanorum/Francia*

Rev. (4*d*) in B [**Pl. IX. 13**], linked with *Votis v multis x/Victoria aug* (9*b*), Mazzini 744.

5. *Gloria exercitus Gall*: no die-links.

6. *SPQR optimo principi*

Rev. (6*a*), in ANS [**Pl. IX. 17**] (= Arras 143, pl. 26, 12), cf. *Felicitas reipublicae* (1*a*) above, in V.

7. *Victoria Constantini aug*

Rev. (7*b*), Bourgey, Dec. 1908, 570, cf. *Felicitas reipublicae* (1*a*) above, Sambon–Canessa 1905.

8. *Virtus exercitus Gall*: no die-links.

9. *Votis v multis x/Victoria aug*

Rev. (9*a*), Schulman, June 1937, 286, cf. above, *Gaudium reipublicae* (2*a*), in B [**Pl. IX. 6**].

Rev. (9*b*), Mazzini 744, cf. above, *Gaudium Romanorum/Francia* (4*d*), in B [**Pl. IX. 13**].

Group ii (N-T, ⅄Ⅼ):

1. *Felicitas reipublicae*

Rev. (1*b*), A. Hess, May 1951, 277, linked with *Gaudium Romanorum/Francia* (4*f*), Basel 6, 2022.

4. *Gaudium Romanorum/Francia*

Rev. (4*f*), cf. preceding entry.

Rev. (4*f*) in Len linked with *SPQR optimo principi* (6*d*), Rollin et Feuardent 1887 (d'Amécourt), 684.

6. *SPQR optimo principi*

Rev. (6*d*), cf. preceding entry.

[1] Possibly identical with Arras 140, pl. 26. 8. The coin was in 1933 in a private collection in Holland.

Group iii (I-N, ⋎⋏):

1. *Felicitas reipublicae*
Rev. (1*e*) in L **[Pl. IX. 5]** linked with *Gloria exercitus Gall* (5*d*) in B **[Pl. IX. 14]**.[1]
Rev. (1*e*), Mazzini 148[2] linked with *Gaudium Romanorum/Alamannia* (3*c*), *Ars Classica* iii, 186,[3] and further *Gaudium Romanorum/Francia* (4*h*), Jameson 351.[4]

2. *Gaudium reipublicae*
Rev. (2*e*), Bourgey 16.3.1913 linked with *Gloria exercitus Gall* (5*d*) in Bel.

3. *Gaudium Romanorum/Alamannia*
Rev. (3*c*), cf. above, *Felicitas reipublicae* (1*e*), Mazzini 148.
Rev. (3*d*) in B linked with *Votis v multis x/Victoria aug* (9*e*) in Ha.

4. *Gaudium Romanorum/Francia*
Rev. (4*h*), Jameson 351, cf. *Felicitas reipublicae* (1*e*), Mazzini 148.

5. *Gloria exercitus Gall*
Rev. (5*d*) in Bel, cf. *Gaudium reipublicae* (2*e*) above.

9. *Votis v multis x/Victoria aug*
Rev. (9*e*) in Ha, cf. *Gaudium Romanorum/Alamannia* (3*d*) in B.

This survey of the obverse links demonstrates the coherence of the Vota-group of solidi, though the comparatively low number of coins of certain reverse types does not allow us to establish ties between the reverse types on each individual stage.

Surprising in view of the homogeneity of the Vota-group is the diversity of the conception of the obverse portrait, going far beyond the graphic characteristics recorded above (wreath strings ⋎⋏ or ⋎⋏). This must be due to the number of die-cutters employed at the mint, all of whom gave their own individual interpretation of the official portrait of the emperor. Thus, in addition to the die-linked obverses, we have more than ten cases where the obverses connected with different reverse types were not only certainly executed by the same die-cutter (representing the same 'style', to employ a word frequently used in order to cover up a lack of exactness of description and definition), but also are so close to one another that only an

[1] Of identical obverse die probably Hirsch xiv, 1497 and Basel 3 (1935), 972.
[2] Ex Basel xii, 860 = Sangiorgi 1907 (Strozzi), 1960 from the J. P. Morgan collection.
[3] Probably identical with Ratto 7.6.1926, 2416.
[4] Ex Hirsch xxiv (Weber), 2575 = Rollin and Feuardent 1887 (d'Amécourt), 675. Fl coin of identical dies.

examination of minute details reveals that they were not struck from identical dies.[1]

So far the examination of the Vota-group has borne out my contention of a coinage divided into 'compartments', though the unequal number of varieties of the individual types noted explains the lack of correspondence between the letters denoting reverse variety[2] within certain chains of obverse links.[3] But this does not tell us whether the compartments were chronological or topographical.

Now, certain features of the obverses assume particular significance in this context. On the one hand, within each obverse group defined as N-T ꟾ, N-T ꟾ, and I-N ꟾ we occasionally meet as many as three distinct varieties of the same portrait, most likely executed by different hands, even among the portraits connected with a single reverse variety.[4] On the other hand, the varieties of the obverse portrait within each group all fulfil certain basic requirements, and have certain details in common. In fact, I suggest that the division in obverse groups, so far employed as an expedient of classification, in reality mirrors three different conceptions of the emperor's portrait. Despite the difficulty of expressing an artistic creation in words, I would, briefly, describe the characteristics of each group as follows:

Group i (N-T, ꟾ **[Pl. IX. 4, 6–7, 9–13, 15–16; Pl. X. 1, 5–6]**):

The obverse head is a harmonious creation, massive, broad but low, the width from the nose to the back of the head is greater than the perpendicular distance from the top of the head to the chin.

[1] Cases in point are, for the Group (i): *Felicitas reipublicae* (1*a*), Sambon-Canessa 20.5.1905, 10 and *Gaudium reipublicae* (2*a*) in V (= CGT, pl. 4. 12, possibly of identical dies: Glendining, May 1936, 236), and further *Virtus exercitus Gall* (8*c*), *Ars Classica* iii, 192; *Gaudium Romanorum|Francia* (4*c*) **[Pl. IX. 11]** in V and *SPQR optimo principi* (6*b*) in L **[Pl. IX. 16]**, and further *Votis v multis x|Victoria aug* (9*c*) in L **[Pl. X. 6]**. For the Group (ii) we have: *Felicitas reipublicae* (1*c*), *Ars Classica* xvii, 1890, and *Victoria Constantini aug* (7*c*) in L **[Pl. X. 2]**. For the Group (iii): *Felicitas reipublicae* (1*e*) in L **[Pl. IX. 5]** (of identical obverse die *Gloria exercitus Gall*, 5*d*, in B **[Pl. IX. 14]**, cf. above) and *Gaudium Romanorum|Alamannia* in Tr (no. 8); further *Felicitas reipublicae* (1*e*), Mazzini 148 (cf. above for obverses of identical dies) and *Victoria Constantini aug* (7*e*) in V (= CGT, pl. 6. 1). *Gaudium Romanorum|Francia* (4*i*) in Ox and *Votis v multis x|Victoria aug* (9*e*) in V **[Pl. X. 7]** (inv. 26.5.48). *SPQR optimo principi* (6*b*) in B **[Pl. IX. 15]** and *Virtus exercitus Gall* (8*a*), *Ars Classica* viii, 1489 (of identical dies probably Schulman, 16.12.1926, 308).

[2] a–i, cf. Appendix.

[3] For instance: *Gaudium Romanorum|Francia* (variety *h*) is coupled to *Gaudium Romanorum|Alamannia* (variety *c*), but then I have examined twenty coins of the former type, subdivided into nine reverse varieties, against only ten of the latter, subdivided into four reverse varieties.

[4] According to the survey above for (1*a*) and (1*e*); (3*c*), (4*f*), and (5*d*), all die-linked with portraits of other reverse groups.

The contours of the upper part of the head follow closely the circular outline of the coin. This, in fact, necessitates the obverse break N-T.

Group ii (N-T, ꝟ [**Pl. IX. 8; Pl. X. 2**]):

The obverse head is smaller, narrower; the outline of the head slopes gently down, and does not follow the outline of the coin, thus creating more space for the legend. The softly upward curving wreath string constitutes a new feature.

Group iii (I-N, ꝟ [**Pl. IX. 5, 14; Pl. X. 3–4, 7–8**]):

The obverse heads are, on the whole, graceful, high, and narrow, the decorative possibilities of the wreath strings are fully exploited. The narrow heads invite the obverse break I-N.

A common feature of all these groups is the execution of the hair, despite individual divergencies. The hair on the obverses of VBIQVE VICTOR and PRINCIPI IVVENTVTIS [**Pl. IX. 1–3**], as a continuation of the tetrarchic portraits, was executed as an even surface, almost like fur (we may call it a close-cropped military hair-cut), and the borderline of the hair was drawn in a continuous curving line from the forehead to the ear. This line is more or less maintained on all the obverses of the Vota-group, but the hair on the forehead and the temple is articulated in locks, increasingly elaborate in the obverse groups (ii) and (iii). The hair is also longer and thicker than previously.

Behind each of these obverses of the Vota-group with all their varieties is, I believe, a distinct creation of a master engraver, the models of which were copied by other engravers. This division of labour may well represent the germ of the subsequent organization of the *comitiva sacrarum largitionum* with the *ducenarius aurificum solidorum* identified with the master engraver[1] and the *centenarii* of the same *scrinium* possibly employed as copyists. Cod. Theod. 6, 30, 7 of A.D. 384 records seven *centenarii*. At the early stage represented by Constantinian rule in Gaul the number of copyists could be expected to be lower.

At times the execution of certain particulars of the obverse portrait suggests the hand of the same engraver even when the portraits belong to different obverse groups, as, for instance, the exceptional

[1] I refer here to Maria R. Alföldi's analysis of the literary evidence, *CG*, 16–20.

way of drawing the wreath ties of *Gaudium Romanorum/Francia* (4*e*), Mazzini 163, and (4*i*), photo of unknown origin, cf. with these further *Votis v multis x/Victoria aug* (9*e* **[Pl. X. 7]**) and (9*f* **[Pl. X. 8]**), both in V and *Gloria exercitus Gall* (5*c*), *Ars Classica* xvii, 1892 (= Hess 194, 956).[1] Similarly, a very unusual truncation connects two distinctly different portraits.[2] A third instance is presented by a copyist who draws up the corner of the mouth, thus creating the impression of a cryptic smile.[3]

Consequently, I would outline the organization of the gold coining in the following way: the *ducenarius* produced the official portraits, the *centenarii* produced the actual dies, which were multiplied by recourse to the process of hubbing.[4]

The fact that nine reverse types were issued contemporaneously presupposes, as far as I can see, that nine obverse dies were in use at the same time. Considering the actual process of striking, carried out by small units of two to three workmen, it is natural to assume that one reverse die was allocated to each unit; if the same unit used in turn all the different reverse dies, substituting one reverse for another each time a reverse die was worn out, the coin material would certainly comprise both fewer reverse varieties and fewer obverse links. If this assumption is correct, nine obverse dies would at the same time, initially at least, have been distributed to the coining units. Again, this presupposes mass production of obverse dies, most likely by the process of hubbing.

This seems to justify the conclusion that the 'compartments' of the Vota-group represent chronological stages of die production, a contention supported by a reverse link: the reverses *Gaudium Romanorum/Francia* (4*f*), Santamaria 1951 (Magnaguti vi), 566 (*obv.* N-T, ꝟ) and Basel 6, 2022 (*obv.* N-T, ꝟ), demonstrate the transition from one obverse to another within the lifetime of one reverse die. Two *SPQR optimo principi* (6*d*)[5] coins show the transition from the obverse (N-T, ꝟ) to (I-N, ꝟ) within the lifetime of a single reverse variety. It may be added that the reverse varieties

[1] The only instance of the obverse (I–N, ꝟ). The wreath strings are, however, drawn in a very unorthodox manner.

[2] *Gaudium reipublicae* (2*e*), Bourgey 16.3.1913, 661, and in Hu.

[3] Cf. *SPQR optimo principi* (6*c*), Tr 6 of obverse type (i), and *Gaudium Romanorum Alamannia* (3*c*), Tr 8 of obverse type (iii).

[4] On this recently W. Schwabacher, *NC* 1965, 41–4 with a Postscript by David Sellwood, who remarks that 'if a large number of dies were required . . . then his (Schwabacher's) hypothetical sequence of master die → hub → working die would be more advantageous and so would be adopted'.

[5] Rollin and Feuardent 1887 (d'Amécourt), 684, and, for instance, Mazzini 556.

Gaudium Romanorum/Alamannia (3*a*) and (3*b*) are linked by obverses struck from identical dies.[1]

We have now followed the Constantinian gold coinage from the solidus reform to the Vota-group, the homogeneity of which has been clearly shown. But our analysis has not, so far, given any indication of the absolute date of the Vota issue. On this point we must turn to the two remaining early solidus types of Trier, IOVI CONSERVATORI AVGG **[Pl. X. 9–11]** and VBIQVE VICTORES **[Pl. X. 12–15]**, the former issued with obverses of Licinius, the latter with obverses of both Licinius **[Pl. X. 12–14]** and Maximinus Daza **[Pl. X. 15]**. The coin material is listed and the types and varieties described in the Appendix. For the former type we have two varieties (*a–b*), for the latter five (*a–e*). All obverses are of Licinius, with the legend LICINI–VS P F AVG, except for one of Daza of the *Ubique victores* variety (*b*). We have three different Licinian portraits, which graphically may be described as follows: (i) ⅄Ⅱ⅃ **[Pl. X. 9, 12]**, (ii) ⅄Ⅱ⅂ **[Pl. X. 13]**, and (iii) ⅄Ⅱ⅂ **[Pl. X. 10, 11, 14, 15]**.

Of both reverse types, the use of obverse (i) is limited to the variety (*a*), and the obverse of the *Ubique victores* in V **[Pl. X. 12]** is from a die identical with the *Iovi conservatori augg* obverse die **[Pl. X. 9]**. Of obverse (ii) one specimen only is known, the B solidus *Ubique victores* (*b*) **[Pl. X. 13]**. The reverse of this coin is linked with the reverse of Hirsch xxix, 1372 of the obverse (iii), and further, that obverse is linked with the obverses of the two B coins of the type *Iovi conservatori augg* (*b*) **[Pl. X. 11]**. Thus the reverse varieties (*a*) and (*b*) of both types are closely interlocked.

The obverse of Daza (*Ubique victores*, *b*) **[Pl. X. 15]** depicts a beardless young man. The truncation of the bust and the wreath ties (type ii) are extremely close to the unique Licinian portrait in B **[Pl. X. 13]**.

The young portrait of Maximinus carries on the Treveran tradition of the preceding years. Trier had been furnished with scarcely any new official portraits of Maximinus after the second tetrarchy. The gold obverse represents a modification of the earlier portraits, of which the close-cropped hair is a reminiscence. Such a portrait was employed briefly early in 308 in the course of the later S | A issue,[2]

[1] Coins in L **[Pl. IX. 9]**, and *Ars Classica* viii, 1478, resp.

[2] *RIC* vi, 217, but without coins of Daza: for four coins of Daza, cf. P. Bastien and F. Vasselle, 'Le Trésor monétaire de Domqueur (Somme)', *Numismatique romaine ii*, Wetteren, 1965, nos. 513–16. A similar coin was found in the Bliesmengen–Bolchen

where Maximinus was named Caesar but Constantine Augustus. It would seem that Constantine, having assumed the title of Augustus on 25 December 307, at first recognized Daza as a junior colleague, but subsequently excluded him from the coinage, together with Galerius, who had made a passing appearance on the folles in the same series.[1] This is in keeping with the fact that Constantine for 308 accepted the consulship of Galerius. The reason for this change of policy is probably the refusal of the East to accept Constantine's rank of Augustus.

Daza reappeared in the bronze coinage as Augustus in the T | F series after the fourth follis reduction,[2] the duration of which was 310 (*terminus post*: death of Maximian) to the first part of 313.[3]

The T | F bronzes of the fourth reduction present several parallels to the early Treveran solidi including the Vota-group. In the course of this issue a new Constantinian portrait was created, one notable characteristic of which was the rich and articulated locks on the forehead and at the temples; the close-cropped hair disappears. These folles of a theoretical weight of $\frac{1}{72}$ of a Roman pound and a diameter of 22 mm.[4] start with portraits showing the short military hair-style, with the border line of the hair drawn in a continuous curving line from the forehead to the ear.[5] The 9-solidi medallion PRINCIPI

hoard, cf. *Die Fundmünzen der romischen Zeit* in *Deutschland* iii, 225, no. 168. A parallel in silver is provided by *RIC* vi, 763.

[1] *RIC* vi, 217 does not identify any of the obverses as Galerius. Nevertheless there are obverse portraits which undoubtedly represent Galerius. Domqueur, nos. 502–3 (cf. pl. 7) gives two instances of this, Margaux, no. 109 a third (cf. J.-J. Cabarrot and D. Nony, 'Le Trésor de "folles" de Margaux (Gironde)', *RN* 1966, 199–240). The obverse legend IMP MAXIMIANVS P F AVG seems here to stand for Galerius as in the contemporaneous silver issue (cf. *RIC* vi, 757). *RIC* vi, 772*b* of the same obverse may thus also represent Galerius (the coin in Voetter's Gerin catalogue, no. 123, lacks confirmation). The difficulty is that we have a vota coin (quarter-follis), *RIC* vi, 793 of the same obverse description, which obviously represents Maximian. Kienast, *Fundmünzen* iii, 224, nos. 163–4 identifies the obverse IMP C AVREL VAL MAXIMIANVS P F AVG (an error for IMP C M AVREL . . . as the reference to Cohen 141, Herculius, shows) with Galerius, which for onomastic reasons is impossible. Maximian's portrait may have been substituted on coins in the Bliesmengen–Bolchen hoard, but Domqueur shows the correct portrait (nos. 584–60, cf. pl. 7).

[2] *RIC* vi, 841*b*, records one coin of Daza in the heavier T | F series with reference to Voetter's Gerin catalogue (no. 26). Confirmation needed. Kienast, loc. cit. maintains 'daß am Ende der Serie PTR S A bereits für Maximinus als Augustus geprägt wird'. This is surely impossible.

[3] Cf. P. Bastien, 'La Cinquième Réduction du follis en 313', *Gazette numismatique suisse*, 17/1967, cahier 67, 103 ff.

[4] Bastien, op. cit., with reference, p. 103, note 4, to the analysis of Jean Lafaurie.

[5] Cf. Mazzini 337*a* (Marti conservatori) = *RIC* vi, 862, and 346 = *RIC* vi, 859, further Domqueur 594 = *RIC* vi, 861; 530 v. (Soli invicto comiti) = *RIC* vi, 869. The same applies to folles without m.m., for Mars, cf. Mazzini 326 = *RIC* vi, 880 and Domqueur 595 = *RIC* vi, 882; for Sol, Mazzini 511 = *RIC* vi, 890, and 514 = *RIC* vi, 893.

IVVENTVTIS[1] could be regarded as a model of this kind of portraiture, which in the gold series characterizes the early types VBIQVE VICTOR and PRINCIPI IVVENTVTIS. The new portrait with articulated locks and abundant hair, found on the solidi of the Vota-group and typical of the T | F folles of the fifth reduction,[2] made its appearance in the course of the issue of folles of the fourth reduction.[3]

In view of this parallelism of portraiture between the folles of the fourth reduction, and the early solidi, it appears justifiable to correlate the fourth reduction of the folles, when the theoretical weight of the bronze coins was brought down to $\frac{1}{72}$ of a pound, with the solidus reform, when the aureus was replaced by a gold coin weighing $\frac{1}{72}$ of a pound. As the silver gradually disappeared from the market[4] it would, no doubt, have been a great advantage to coin in two metals only, particularly if the basic monetary units were of the same weight standard. Now, the fourth reduction of the follis was introduced some time after the death of Maximian, after the heavier T | F series,[5] the duration of which can scarcely have been less than six months. Mid 310 would thus be the approximate date both of the fourth reduction and of the solidus reform.[6]

Now, the new portrait of Constantine with articulated locks appears in the course of the T | F series of the fourth reduction. In the gold coinage it was introduced with the Vota-group, which accordingly must start somewhere in the middle of the T | F issue struck at $\frac{1}{72}$ of a pound. The start of this was, as noted above, mid 310 at the earliest. Consequently, the Vota-group and the quinquennial celebrations would fall much later than mid 310, i.e. at the second date

[1] *RIC* vi, 801, cf. CGT, pl. 5. 1.

[2] Weight $\frac{1}{96}$ of a pound, cf. Lafaurie, 'Trésor Constantinien', *RN* 1966, pl. 28. 7–13.

[3] Cf. Mazzini 525 = *RIC* vi, 873 and 531 = *RIC* vi, 870. The same hair-style can be found on the PRINCIPI IVVENTVTIS medallion in Ox, *RIC* vi, 802, pl. 2.

[4] No silver coins proper were issued by Constantine after the half-pieces of early 308, cf. *RIC* vi, 756–65.

[5] *RIC* vi, 829–43.

[6] The only gold coins which do not conform to the general pattern of the gold coinage are the solidus CONSECRATIO (*RIC* vi, 809, cf. Maurice, *Numismatique Constantienne* i, pl. 22. 8), which on account of the engraving and the portraiture agrees in date with the other solidi, and the half-solidus PONT MAX TRIB P P P PROCS, *RIC* vi, 795, in L, which, on the basis of portraiture, must belong to a much later period. For a corresponding portrait of 322–3, cf. the DEBELLATORI GENTIVM BARBARARVM with rich hair and heavy jaw, *RIC* vii, 356 and CGT, pl. 7. 14. Maria R. Alföldi, CGT, 104, regards the latter as the first trace of the solidus reform, dated by her to 306. The PROCS of the reverse legend would, according to her, be earlier than Constantine's first consulship, I fail to see why. She herself admits that the obverse shows a late portrait, though she regards it as created early.

possible, 25 December 311. If the regnal years had been computed on Constantine's acclamation in York, the date would have been 24 July 310.

In fact, other considerations are also in favour of this late dating, though the coin material available to me at the moment of writing does not permit me to substantiate the argument in detail.

I have stressed above that the rapprochement of Constantine, Licinius, and Maximinus should be dated to the time after Galerius' death, though, of course owing to his illness, this could have been anticipated by his colleagues and successors.[1] Now the T | F folles of the fourth reduction (*RIC* vi, 844–76) prove generous coining in honour of both Daza and Licinius, with due regard to the fact that Constantine with his two reverse types, and in his capacity of master of the mint city numerically dominated the coinage. Had they been introduced into the coinage a year after its initiation, we should expect their coins to be scarcer than what is suggested by the rarity column (*RIC* vi). It is, therefore, possible that the heavy T | F series (*RIC* vi, 829–43) was followed by the unmarked or an unmarked series of the reverse showing the portraits of Sol and Mars. The light T | F issue would thus have started early in 311, and the obverses of the close-cropped hair would accordingly belong to the time preceding the initial quinquennial celebrations. This is offered as a suggestion, which subsequently has to be examined in the light of a rich hoard material.

This digression to the field of the bronze coinage has, it seems to me, given a *terminus post quem* for the solidus reform, mid 310, and clarified that the quinquennial celebrations were initiated in December 311, but it has not enabled us to relate the solidi of Licinius and Daza to either of the two groups of Constantinian solidi, i.e. the group *Ubique victores* and *Iovi conservatori augg* to either the *Ubique victor* or the Vota-group, though it is natural to assume the *Ubique victores* followed after *Ubique victor*. Now, had *Ubique victores* run parallel to *Principi iuventutis*, a possibility not entirely excluded by the die-links between the latter type and *Ubique victor*, we should be forced to date the solidus reform somewhat later, because the earliest possible date for the obverse of Licinius and Daza is, roughly, mid 311. It is, however, safer and more natural to connect the thin obverse portraits of Licinius of the wreath tie design (ꝟ) **[Pl. X. 10, 11, 14]** with the corresponding Constantinian obverse (I-N, ꝟ)

[1] Not much, because Daza was not accepted as consul in 311 by Constantine.

[Pl. IX. 5, 14; Pl. X. 3–4, 7–8] which seems to reflect an identical artistic conception and feeling. These Licinian portraits were preceded by others **[Pl. X. 9, 12–13]**, corresponding to the massive portraits of Constantine (particularly N-T ꟻL) **[Pl. IX. 4, 6–7, 9–13, 15–17; Pl. X. 1, 5–6]**, and the reverse variety *Ubique victores* (*b*) **[Pl. X. 13]** ties the obverse of Daza **[Pl. X. 15]** to the transition between the earlier and the later Licinian portraits. Consequently, to the quinquennial solidus coinage we should add both *Iovi conservatori augg* and *Ubique victores*.

We have thus arrived at the following picture of the coinage after the death of Maximinian late in 309:

(i) Beginning of 310

(*a*) Aurei marked TR, PRINCIPI IVVENTVTIS (*RIC* vi, 755)[1] **[Pl. IX. 1]**.

(*b*) Folles marked T | F at $\frac{1}{48}$ of a pound, i.e. 6 scruples with obverses of Constantine alone.

(ii) After mid 310

(*a*) Solidi marked TR, VBIQVE VICTOR

(*b*) Solidi marked PTR, VBIQVE VICTOR and PRINCIPI IVVENTVTIS **[Pl. IX. 3, 2]**, obverses of Constantine alone. At the same time most likely certain multiples of the type PRINCIPI IVVENTVTIS, possibly the solidus CONSECRATIO (*RIC* vi, 809), and tremisses of the reverse PRINCIPI IVVENTVTIS (*RIC* vi, 796–7) were issued.[2]

(*c*) Folles marked T | F at $\frac{1}{72}$ of a pound, i.e. 4 scruples, obverses of Constantine alone.[3]

[1] The chronological *termini* of this issue are, of course, 25 December 307 and the date of the solidus reform.

[2] The fact that the fractions are marked TR does not prove that they were earlier than the solidi. TR remains the m.m. of the fractions also in the later period, cf. *RIC* vii, 197–8. The half-solidus marked PTR, *RIC* vi, 822, is probably an error. It is a Paris coin weighing 1·69 gm., obviously listed already as no. 797. The confusion must have been caused by Maria R. Alföldi, *CG* no. 329 = CGT no. 53, and *CG* no. 332 = CGT no. 52 with obverses identical but for the legends IMP CONSTANTINVS P F AVG and IMP CONSTANTINVS AVG, respectively. In both cases Mrs. Alföldi seems to record the same coin, referring to Cohen 413.

[3] As suggested above this issue of folles may have been preceded by an unmarked issue corresponding to *RIC* vi, 877–95 with obverses of Constantine alone. Within this unmarked series obverses can be found which certainly are earlier than certain of the T | F portraits of the fourth reduction. Only a detailed analysis can clarify the development on this point, and particularly whether the entire T | F series was struck after the reconciliation of Constantine, Licinius, and Daza.

(iii) After mid 311

(*a*) Continuation of the solidi of the preceding issue; for the initial *quinquennalia* on 25 December 311 the Vota-group of solidi with the addition of IOVI CONSERVATORI AVGG and VBIQVE VICTORES. Some multiples were certainly issued at the same time, at least one PRINCIPI IVVENTVTIS (*RIC* vi, 802)[1] and tremisses of the type IOVI CONSERVATORI AVGG (*RIC* vi, 794).[2]

(*b*) Folles marked $\frac{T \mid F}{}$ at $\frac{1}{72}$ of a pound with obverses of Constantine, Licinius, and Daza.[3]

(*c*) Unmarked folles, obverse of Constantine alone (*RIC* vi, 877–95).[4]

The coinage of Trier thus shows us that 25 July 310 is much too early a date for the celebration of Constantine's *quinquennalia*. Again, the frequent die-links within the Vota-group of solidi speak of a festal coinage struck in great quantities within a very short period of time; the coins can be divided in different groups, the one of which would have been issued for the initial, the other to the concluding celebrations, a year later. In all probability the entire group was produced in the course of a few months before the celebrations and distributed, to a large extent, in connection with the festivities on 25 December 311. This festal coinage included also special types for Licinius, whose engagement to Constantine's sister Constantia about this time confirmed the alliance between these two co-regents.[5]

With the Vota-group of coins gold minting came to an end at

[1] The reproductions of the multiples available have not been good enough to allow me to study the portraits closely. For the celebrations one would expect multiples with busts out of the ordinary. *RIC* vi, 808, records a $1\frac{1}{2}$ solidus piece (identical with *RIC* vii, 3, in Hu). There are other similar medallions, 'fest' aurei (*RIC* vii, 4–5), which have not been included. It is hard to decide whether they belong to this issue or to the issue struck after Constantine's return from Italy. It may well be correct to date the $1\frac{1}{2}$ solidus to 311, and the aurei to 313, though it seems to me that particularly the portrait of Constantine corresponds better to the later Treveran portraits than to those of the solidi of the Vota-group.

[2] The fractions of the type VBIQVE VICTORES (*RIC* vi, 798–800) have all been published in *RIC* vii (195–6) and dated to A.D. 317—together with similar coins with obverses of Crispus and Constantine II. I cannot at present substantiate my arrangement with any new arguments, but it seems to me that the hair style points to a later period than A.D. 310–13.

[3] The new Constantinian portrait of the gold coinage (the Vota-group) seems to have been introduced, in all probability, at the same time into the bronze coinage in this mark.

[4] As suggested above some of these coins may have been struck earlier.

[5] Lact. *De mortibus* 43, 2; Zosimus ii. 17, 2.

Trier for a while. In the spring Constantine set out on his Italian campaign; on 28 October 312 he defeated Maxentius in the battle of the Milvian Bridge,[1] and when the quinquennial year expired on the *Dies Solis* in 312, the emperor was in Rome. On this occasion new vota coins were issued with the much debated reverse VICTORIAE LAETAE PRINC PERP/VOT X, subsequently with VOT P R.[2] This vota type represents the chief innovation at the mint of Rome, where otherwise, and at Ostia, reverse types of the first solidus issues of Trier were repeated.[3]

It now remains to note that the *dies imperii* of 25 December 307, which Constantine, owing to political difficulties, was forced to accept under pressure, was not retained as his imperial birthday for long. His *decennalia* were calculated with 25 July 306 as his *Natalis imperii*, and M. Lafaurie's examination of the epigraphical evidence shows that Constantine readjusted the computation of regnal years in 314 or 315, as noted by Seston long ago.[4]

[1] My doubts with regard to the date of the battle of Ponte Molle arose out of the difficulty of dating the vota coins created for the expiry of the quinquennial year (cf. the following note). I had, erroneously, calculated the regnal years of Constantine with 1 March 307 as point of departure (cf. 'The Battle of the Milvian Bridge', *Hermes* 1960, 361–70). With Constantine's *dies imperii* dated to the period 10–31 December 307, and most likely to 25 December that year, all difficulties regarding the vota coins disappear, and the traditional date of the battle can be accepted.

[2] Not published in *RIC* vii, because the present writer, particularly in view of the module and fabric of the coins, referred them to a gold series earlier than 315 (cf. *RIC* vii, 281). In this case, Rome, A.D. 312–13 seemed to be the only possibility. *RIC* vi omitted these coins because Dr. Sutherland, in agreement with Mrs. Alföldi, assigned them to 315 (cf. *RIC* vi, Addenda, p. 688), a date which is impossible (Bruun, *NNM* 146, 49, n. 3).

[3] Cf. Maria R. Alföldi, *CG*, 34 f., and Bruun, *NNM* 146, 48 f. and *RIC* vii, 281.

[4] *REA* 1937, 210. Strangely enough this has escaped M. Lafaurie, who suggests that Constantine resumed the old computation only after his victory of Chrysopolis in 324 (*CRAI* 1965, 206). Seston's evidence is the inscription *CIL* viii, 8477 = Dessau 695: TR P X IMP IX COS IV VOT X MVL XX. Compare this with *CIL* viii, 10064 = 22017: TR P IX CONSVL VIII [*sic*] COS III DES IIII (CONSVL here clearly is a mistake for IMP). The latter inscription was written when Constantine was consul designate for the fourth time, in 314; because of the tribunician powers assumed on 10 December, the date is before 10 December 314. Again, the date of the former is after 10 December 314 (TR P X), even after 1 January 315 (COS IV), and before 10 December 315 (when Constantine received his TR P XI). Consequently, he must have received his ninth imperial salutation between these two dates, which presupposes a change of his *dies imperii* from 25 December. The inscription with the *vota soluta* (X) and *vota suscepta* (XX) makes it clear that Constantine added more than a year to the computation of his regnal years as compared with the reckoning using 25 December 307 as a point of departure (otherwise his decennial year would have fallen in the year 316–17). It is thus clear that he reverted to his *dies Caesaris* (as M. Lafaurie maintains), 25 July 306, and identified it with his *dies imperii*. Accordingly, his decennial year began on 25 July 315.

APPENDIX

Reverse types and main reverse varieties of solidi issued at Trier in conjunction with Constantine's *quinquennalia*. The reverses are listed in alphabetical order, preceded by the *RIC* vi number, first those with obverses of Constantine alone, then those with obverses of Licinius and Daza.

A. WITH OBVERSES OF CONSTANTINE

(1) 810 FELICITAS REIPVBLICAE, Constantine seated l. on platform, flanked on either side by officer holding spears, below platform, three kneeling figures.

(*a*) Rev. break I-P, face of platform empty: B **[Pl. IX. 4]** = *Ars Classica* ii, 1740 (ex Sotheby, July 1921, 127); V (= CGT, pl. 4. 15); Sambon–Canessa 20.5.1905, 10; Rollin and Feuardent 1896 (Montagu), 800 (ex Rollin and Feuardent 1887, d'Amécourt, 672).

(*b*) Rev. break I-P, two coils of garland on face of altar: A. Hess, May 1951, 277.

(*c*) Rev. break I-P, three coils of garland on face of altar, horizontal line across lower part of altar: Hamburger, June 1930, 1039; *Ars Classica* xvii, 1890.

(*d*) As (*c*), but middle coil very small: V (= CGT, pl. 4. 13); Hess 1935 (Trau), 3942.

(*e*) Rev. break I-P, three coils of garland, no horizontal line: L **[Pl. IX. 5]**; Mazzini 148 (ex Basel xii, 860 = Sangiorgi 1907, Strozzi 1960, ex collection J. P. Morgan).

(*f*) Rev. break E-I-P, otherwise as (*e*): Ciani 1935, 623.

(*g*) Rev. unbroken, otherwise as (*e*): C (= CGT, pl. 4. 14, partly damaged by loop).

(2) 811 GAVDIVM REIPVBLICAE, trophy between seated captives. Variations according to head-dress of captives, position of the shields forming part of the trophy, and the number of spears forming part of the trophy.

(*a*) Rev. unbroken, captive to r. with pointed cap, the two uppermost shields of the trophy pointing obliquely up to r.: V (= CGT, pl. 4. 12); B **[Pl. IX. 6]**; Arras 145 (*NC* 1933, pl. 26. 16, Schulman stock 1931); Glendining, May 1936, 236.

(*b*) As (*a*), but captive to l. with pointed cap: N **[Pl. IX. 7]**.

(*c*) Rev. break E-I, captive to r. with pointed cap, shields as (*a*): Ratto, April 1923, 444; Ratto 7.6.1926, 2415 (possibly same as the preceding coin); Hess 1933, 260.

(*d*) Rev. unbroken, captive to r. with pointed cap, shields pointing obliquely up to l.: L **[Pl. IX. 8]**.

(*e*) As (*d*), but captive to l. with pointed cap: Hu; Bourgey 16.3.1913, 661.

(*f*) Rev. unbroken, captive to r. with pointed cap, shields turned r., but two spears on l. side of trophy, one on r. instead of three, and two, resp.: v. Kaufmann—Hamburger 1929, 1573.

N.B. There is a coin, not examined by me, in the Fitzwilliam Museum, Cambridge.

(3) 823 GAVDIVM ROMANORVM/ALAMANNIA, Alamannia seated l. on ground, resting on r. hand; above, partly hidden by her back, trophy.

(*a*) Rev. break O-M, Alamannia, body almost upright, with l. hand on drapery behind her back: L **[Pl. IX. 9]**.

(*b*) Rev. unbroken, otherwise as (*a*): Hirsch xxiv (Weber), 2574 (ex Rollin and Feuardent 1887, d'Amécourt, 674); *Ars Classica* viii, 1478.

(*c*) Rev. unbroken, Alamannia larger, bowing deeply, holding bow with arrow inserted with l. hand, no drapery behind her back, trophy leaning to l.: Tr 8; *Ars Classica* iii, 186; Ratto 7.6.1926 (probably same coin as the preceding and as Ratto, April 1923, 445, from the Arras hoard, cf. *NC* 1933).

(*d*) Rev. break (tiny) R-O, trophy almost in upright position: B; V (= CGT, pl. 4. 10).

(4) 824 GAVDIVM ROMANORVM/FRANCIA, Francia seated l. on ground, resting on r. hand; above, partly hidden by her body, trophy.

(*a*) Rev. break A-N, small Francia, body almost upright, l. hand on drapery behind her back: Ox **[Pl. IX. 10]**.

(*b*) Rev. unbroken, otherwise as (*a*): V **[Pl. IX. 11]**.

(*c*) Rev. break O-M, otherwise as (*a*): V (= CGT, pl. 4. 11).

(*d*) Rev. unbroken, small Francia holding bow with arrow inserted with l. hand behind her back, no drapery: Mun **[Pl. IX. 12]**; B **[Pl. IX. 13]**.

(*e*) Rev. break R-O-M (tiny breaks), otherwise as (*d*): Mazzini 163.

(*f*) Rev. break R-O (tiny), Francia larger, bowing deeply, otherwise as (*d*): Len; Santamaria 1951 (Magnaguti vi), 566; A. Hess, May 1951, 278; Basel 6, 2022.

(*g*) Rev. break -ORV-, otherwise as (*f*): Hirsch xxix, 1378 (= Hirsch xxxiii, 1468); *Ars Classica* iii, 187; *Ars Classica* xi, 997; *Ars Classica* xviii, 504.

(*h*) Rev. break R-O, Francia bows even more deeply, otherwise as (*f*): Fl; Jameson 351 (ex Hirsch xxiv, Weber, 2575 = Rollin and Feuardent 1887, d'Amécourt, 675); Basel 180 (June 1958), 69 (ex Dorotheum, June 1955, 2230).

(i) Rev. unbroken, otherwise as (*h*): unidentified photograph.

N.B. There is a coin in RV, not examined by me.

(5) 812 GLORIA EXERCITVS GALL, Constantine riding r., raising r. hand.

(*a*) Rev. break R-C: Hess 1935 (Trau), 3943.

(*b*) Rev. break E-R: Len.

(*c*) Rev. break E-R-C: *Ars Classica* xvii, 1892 (ex Hess 194, 1929, 956).

(*d*) Rev. break R-C, small horse: Bel; B **[Pl. IX. 14]**; Hu; Hirsch xiv, 1497; Basel 3 (1935), 972; Basel xxv, 650; Rollin and Feuardent 1887 (d'Amécourt), 676.

(*e*) Rev. unbroken: L.

(6) 815 SPQR OPTIMO PRINCIPI, legionary eagle l. between two standards, surmounted l. by hand, and r., by wreath.

(*a*) Rev. unbroken; eagle with flapping wings, standard to l. with one round badge under drapery; standard to r. without drapery but with two round badges separated by cross-bar: Br (cf. RBN 1931, pl. 1. 19, ex Arras according to *NC* 1933); DO (= Glendining, Nov. 1925, 176 = Sotheby, July 1914, 184 = Sotheby, June 1911, 629); ANS **[Pl. IX. 17]** (Arras 143, *NC* 1933, pl. 26. 12: Newell collection).

(*b*) Rev. unbroken, as (*a*); two round badges on standard to l.; standard to r. under wreath: drapery and two round badges separated by cross-bar: L **[Pl. IX. 16]**; B **[Pl. IX. 15]**.

(*c*) Rev. break P-T, as (*b*); badges on standard to l. separated by cross-bar; standard to r. made up of three round badges, cross-bar between two lowest: Tr. 6.

(*d*) Rev. unbroken; eagle not flapping wings; standard to l. as (*c*); standard to r. with two round badges between three cross-bars: Ha; Rollin and Feuardent 1887 (d'Amécourt), 684; Hess 1917, 4396; *Ars Classica* xv, 1920; Mazzini 556.

(7) 819 VICTORIA CONSTANTINI AVG, Victory advancing l., r. hand holding wreath, l. palm.

(*a*) Rev. break A-N: V (= CGT, pl. 4. 17); C **[Pl. X. 1]**.

(*b*) Rev. break T-A: Bourgey, December 1908, 570 (not 560 as on plate).

(*c*) Rev. break -ST-: L **[Pl. X. 2]**.

(*d*) Rev. break T-A, as (*b*), but both feet close together: Sangiorgi, April 1907, 1962; Hess 1935 (Trau), 3950.

(*e*) Rev. break unknown: V (= CGT, pl. 6. 1).

(8) 820 VIRTVS EXERCITVS GALL, Mars naked but for helmet, advancing r., holding transverse spear with r. hand, trophy across l. shoulder.

(*a*) Rev. break X-E, l. pleat of chlamys flying under spear shaft: *Ars Classica* viii (Bement), 1489; Schulman 16.12.1926, 308 (in Newell collection when discussed, *NC* 1933, 347, where provenance from Arras hoard denied).

(*b*) Rev. break X-E, l. pleat of cloak flying above spear shaft: V (= CGT, pl. 4. 8); Arras 141.

(*c*) Rev. break -ER-: *Ars Classica* iii, 192.

(*d*) Rev. break -ER-, Mars tall, bulky trophy breaking legend: L [**Pl. X. 3**]; Canessa 1923 (Caruso), 564; Hamburger 20.4.1929, 710.

(*e*) Rev. break X-E, as (*b*), but tall Mars and bulky trophy breaking legend: P [**Pl. X. 4**]; Rollin and Feuardent 1896 (Montagu), 824.

N.B. There is a coin in the National Museum of Ljubljana, not examined by me.

(9) 821 VOTIS.V.MVLTIS X/VICTORIA AVG, Victory stg. r., inscribing VICTORIA AVG in four lines on shield on cippus.

(*a*) Rev. unbroken, cippus undecorated, inscription on shield VI/CTO/RIA/AVG: V; Fl; Ox [**Pl. X. 5**] (ex Schulman, June 1937, 286, obviously identical with Arras 140, cf. *NC* 1933, pl. 26. 8. The coin had before 1933 passed through Schulman's hands, and was at that time in a private collection in Holland).

(*b*) Rev. break ·V·-M, cippus divided in two parts by horizontal line, and both parts by a diagonal stroke, shield inscription as (*a*): Hirsch xxx, 1259; Mazzini 744.

(*c*) As (*b*) but shield inscription VIC/TOR/IA/AVG: L [**Pl. X. 6**]; Hess 1935 (Trau), 3954.

(*d*) As (*c*), but undecorated cippus: Cañessa 1907, 2904.

(*e*) Rev. unbroken; cippus undecorated; shield inscription VI/CTO/RIA/AVG: V (inv. 26. 548) [**Pl. X. 7**]; Ha (ex van Damme).

(*f*) Rev. unbroken, as (*e*), but diagonal strokes on face of cippus: V (inv. 38. 724) [**Pl. X. 8**]; Tr. 7; Rosenberg, March 1914, 462.

N.B. A solidus, Ratto 1912, 1906, has not been examined by me. I have here excluded a number of specimens of aureus weight, all with the obverse legend CONSTAИ-TINVS AVG (in Fl, RV, Hu, Ball 39, April 1937,

2034, Hirsch xxiv (Weber), 2598; in Mi a 'silver strike' from a 'gold die', cf. Gnecchi i, pl. 29. 6). They may be antique forgeries (the fabric suggests this), but they may also represent the first step towards the 'Festaurei', which Constantine introduced a couple of years later in the coinage.

B. WITH OBVERSES OF LICINIUS AND MAXIMINUS

RIC vi, 813 IOVI CONSERVATORI AVGG, Jupiter, naked to the waist seated l. on high backed throne, r. hand holding thunderbolt, l. leaning on sceptre.

(*a*) Rev. break V-A: ANS **[Pl. X. 9]**, (*NC* 1933, pl. 26. 14, ex Newell collection).

(*b*) Rev. break A-T: V **[Pl. X. 10]**; B; B **[Pl. X. 11]** (engraver's error: no throne on reverse).

RIC vi, 817 VBIQVE VICTORES, Prince stg. facing, head r., in military dress, r. hand holding transverse spear, l. globe; seated captive on either side (obverses of Licinius unless otherwise stated).

(*a*) Rev. unbroken, captive to r. with pointed cap: V **[Pl. X. 12]**; P (= CGT, pl. 5. 8).

(*b*) Rev. break E-V, otherwise as preceding: obverse of *Licinius*: B **[Pl. X. 13]** (ex Hirsch xxiv, Weber, 2565); Hirsch xxix, 1372; Ratto 27.4.1911, 1408. Obverse of *Maximinus*: P **[Pl. X. 15]**.

(*c*) Rev. break V-I, otherwise as preceding: *Ars Classica* iii, 179; Cahn 75, 1492; *Ars Classica* xvii, 1882 (ex Arras, probably identical with Ratto, April 1923, 442, also ex Arras).

(*d*) Rev. break V-I, captive to l. with pointed cap: L **[Pl. X. 14]**; C; Tu (= Fabretti 8645); Hirsch viii, 2672; Schulman 1923 (Vierordt), 2631; Canessa 1923 (Caruso), 547.

(*e*) Rev. unbroken, neither captive with pointed cap: ANS, Rollin and Feuardent 1896 (Montagu), 790 (ex Rollin and Feuardent 1887, d'Amécourt, 656).

N.B. The coin Helbing 12.12.1904, 514 not examined by me.

COIN DIES UNDER EDWARD I AND II

By MAVIS MATE

In the course of my research on the monetary policies of Edward I and II,[1] I have discovered documentary evidence which substantiates Mr. Stewart's earlier work on die output and throws new light on the recoinage of 1300. It is now possible to publish a complete list of the number of dies supplied to the royal mints of London and Canterbury between September 1281 and February 1327 and to all the royal provincial mints in 1300, as well as partial figures for the ecclesiastical mints of York and Durham. I have also been able to settle beyond reasonable doubt the meaning of the words *cuneorum* and *ferra cuneorum*, which has been an important consideration in recent discussions about the capacity and output of medieval coin dies.

In an article which appeared in the *Numismatic Chronicle* for 1964,[2] Mr. Stewart stated his belief that when the mint accounts refer to the manufacture of a dozen *cuneorum* they are referring to individual dies. Thus a reference to ten dozen *cuneorum* would mean 120 individual dies, probably in the form of forty sets of one obverse to two reverse dies. Mr. Grierson, on the other hand, suggested that the mint accounts would not bill the component parts separately, so that the words *cuneorum* and *ferra cuneorum* might refer to die-sets rather than individual dies. He therefore thought that when a mint account records the manufacture of ten dozen dies, it might mean 120 sets of dies (i.e. 360 individual dies) and not forty sets.

From a reference on the King's Remembrancer's Memoranda Roll it seems clear that the word *cuneus* was generally used in such context by mint and other officials to refer to individual dies, and not sets of dies. For when the King's Remembrancer in 1300 recorded the delivery of dies to the Exchequer he fortunately explained exactly what he was receiving, perhaps because the word *cuneus* could have

[1] I am very grateful to the American Association of University Women for the fellowship that made possible the writing of this paper and I am also deeply indebted to Mr. Ian Stewart and Mr. Peter Woodhead for reading the first draft and making many valuable suggestions and criticisms. A version of this paper was read to the British Numismatic Society on 25 June 1968 by Miss Archibald on my behalf.

[2] B. H. I. H. Stewart, 'Second Thoughts on Medieval Die-Output', *NC* 1964, 293–303.

the double sense of die-set and individual die. He wrote 'on 27 June John de Sandale sent by Lapinus Rogeri and Robert de Sandale three dozen dies for the exchange of Durham in thirty six pieces i.e. twelve piles and twenty four trussels. And for the exchange of Hull, six dozen i.e. twenty four piles and forty eight trussels. And for the exchange of Newcastle three dozen i.e. twelve piles and twenty four trussels'.[1] Other references to a dozen dies in similar contexts almost certainly mean four piles and eight trussels, i.e. four sets of dies.

From September 1281 the mint accounts record the number of dies (*cuneorum*) manufactured for the mints of London and Canterbury, as it was necessary to account for the fee paid to the holder of the serjeanty of the dies. During his great recoinage in 1280 Edward I had withdrawn the serjeanty of the dies from the fitz-Otto family. When he restored it to them, in July 1283, he began the practice of paying them 7*s.* for each dozen dies made. At first the new holder of the serjeanty, Guy Ferre, who had married Joan, the eldest daughter of Thomas fitz-Otto, reimbursed the king for the cost of cutting the dies at the rate of 2*s.* a dozen. He even repaid the king for the 265 dozen dies made between the end of the recoinage in 1281 and July 1283 when the serjeanty was restored to him. But when his wife died soon after without issue the serjeanty passed, in 1285, to John Botecourte who had married her sister Maud. Botecourte also received 7*s.* for each dozen dies made, but he was not required to pay the 2*s.* engraving charge, which was now borne by the Master of the Money.[2] Thus from 1281 until 1327 there is a double record of the number of dies manufactured and used, for the mint accounts note both the money received for the cost of the dies and the fee paid to Guy Ferre and John Botecourte. There are also complete accounts of the amount of bullion coined at London and Canterbury, so that it is possible to divide one into the other and end with an estimate of the average number of coins struck from a single set of dies.[3]

But these estimates can never be more than estimates: they can never be a 100 per cent accurate, for it is impossible to tell how

[1] 'Postea die Lune proxima post festum sancti Johannis videlicet xxvii die Junii predictus dominus Johannes de Cendale misit per Lapinum Roger' et Robertum de Cendale tres duodenas cuneorum pro cambio Dunolm' in triginta et vi peciis videlicet xii piles et xxiiii trussellos. Et pro cambio de Hull' sex duodenas videlicet xxiiii piles et xlviii trussellos.' Public Record Office, King's Remembrancer's Memoranda Roll (E. 159/73), m. 29d.

[2] This information was obtained from the mint accounts enrolled on the following Pipe Rolls: E. 372/132, m. 2; E. 372/121, m. 4.

[3] See Appendix B.

frequently dies were stockpiled or how much more one set of dies may have been used than another. But during periods of unusual activity or whenever the supply of silver dropped suddenly, it is clear that more dies were made than could be used immediately and these spare dies, which had already been paid for, were either not used at all or were carried over from one accounting period to the next. For example, during August and September 1320 all the dies were sent to Canterbury, although £410 of pennies and £30 of farthings were coined at London, presumably with dies that were already available. Similarly no more dies were made at London after 1324, yet coins were still struck there. Unfortunately it is impossible to ascertain from the records how frequently this practice occurred and how many dies were involved.

Another limitation on the accuracy of these estimates is that the mint accounts do not specify whether the dies are for pennies, halfpennies, or farthings or indeed for groats. It is possible that the dies for farthings, for example, wore out or broke more quickly than those for pennies, or, on the contrary, lasted longer. Furthermore, although a farthing die might strike more individual coins than a penny die, it would certainly strike less silver than a penny die. This must to a certain extent also apply in the case of halfpenny dies and the converse in the case of groat dies. Finally the dies for the Canterbury mint were usually made at London[1] and sent to Canterbury and it is not known whether the Canterbury dies were therefore used for longer periods or not. But, on the few occasions for which separate Canterbury figures are available, the die output at Canterbury seems to have been considerably less than at London.

Despite these limitations one can draw some interesting general observations from these figures. First, Mr. Stewart's round figure of 30,000 coins as the average output per obverse die needs little revision, for the average number of coins per obverse die for Edward I's reign was 39,031 and for Edward II's reign was 28,187. But the figures also show that there was no set amount which could be and

[1] It will be seen from Appendix B that between November 1287 and July 1290 the Canterbury dies were accounted for separately from those of London. For this period, both the Master of the Money and the Warden accounted for them separately. This may have been simply an accounting device, but it may indicate that during this period the dies were being made on the spot at Canterbury, instead of being sent there from London. For when William de Wymondham took over the mint at Canterbury in July 1290 he noted that he received no money from the Master in part-payment of the fee to John Botecourte, because all the dies for Canterbury were made at London (E. 372/144, m. 26d.); the wording implies that he had expected to receive money from the Master for the Canterbury dies.

was coined from a particular die. Instead the die output varied according to the efficiency of the Warden, the amount of silver being brought to the mint and the quality of the dies.

Certainly the low die output at London and Canterbury during the recoinage of 1300 (just over 23,000 coins) seems to have been partly the result of inferior dies. Early in May the king complained to John de Sandale, the London Warden, that the dies he had recently sent to Durham were used up within a few days because they were made of such soft metal.[1] Sandale was ordered to produce better dies in the future, but he does not seem to have obeyed the royal command, for on 9 June Edward again complained about the quality of the dies. According to him they were being made too small in circumference, too shallow and poorly engraved, and, as a result, the pennies were coming out too small, so that there was little difference between them and the halfpennies and the inscription was scarcely legible.[2] The numismatic evidence shows that these complaints, though somewhat exaggerated, were not unfounded. The coins from the provincial mints in 1300 are easily distinguished from the 1280 issues by being decidedly smaller. In addition, Mr. Stewart notes that these coins, and especially those from Kingston-on-Hull, were often struck 'from obverse dies in very poor condition, scarcely capable of making an effective impression on the blank'.[3] Quite naturally he attributed the poor quality of the coins to excessive output from the dies. But John de Sandale sent a plentiful supply of dies to York for distribution to the northern mints. The poor coins may have resulted from the poor quality as well as the extensive use of the dies.

Some, but not all, of the provincial mints in 1300 also struck low amounts of coin per obverse die. The complete figures for the royal mints in 1300 are shown on the opposite page.

These figures are slightly different from those of Mr. Stewart.[4]

[1] 'Et quare intelleximus quod cunei quos ad mandatum nostrum apud Dunolm' nuper misistis ex tam molli metallo et consumptibili fabricantur quod ex paucorum dierum operibus consumuntur.' Letter from Edward I to John de Sandale, dated 9 May 1300. P.R.O., Lord Treasurer's Remembrancer's Memoranda Roll (E. 368/71), m. 56. [2] See Appendix A for a full transcription of this writ of 9 June.

[3] B. H. I. H. Stewart, 'Medieval Die-Output', *NC* 1963, 105.

[4] Mr. Stewart has asked me to draw attention to a number of errors which he regrets appeared in the tables in 'Second Thoughts on Medieval Die-Output', *NC* 1964. On p. 299: the Newcastle obverse and reverse averages should be 29,913 and 14,957 respectively; the Bristol reverse average given is for 186 dies (for 187 it would be 17,211); the total number of coins issued from Chester should be 348,000, increasing the supposed averages to 24,857 and 12, 429. On p. 301: Newcastle's output should be £20,690

In the case of Newcastle his average was taken over a three-year period and may be misleading. For if all the dies paid for during one accounting period were used during that period, then from June to September 1300 only 23,155 coins were struck from an obverse die. Whereas in the following Exchequer year, September 1300 to September 1301, 42,255 coins were made from each obverse die and in the mint's final year of operation the number per obverse die dropped to 17,800. This could indicate that inferior dies were used in the summer of 1300 and that later John de Sandale heeded the royal commands and improved the quality of the dies. On the other hand, if a large number of dies were carried over from one accounting period to the next, then Mr. Stewart's average figure of 29,913 would be more accurate.

Mint	*Coins issued*	*Total dies*	*Presumed no. of obverses*	*Average no. of coins per obverse die*
Chester	348,000	4 doz.	16	21,750
Bristol	3,218,400	23 doz.+4	93	34,606
Exeter	928,800	10 doz.	40	23,220
York (royal) and Hull	4,264,800	32 doz.	128	33,319
Newcastle (June–Sept. 1300)	1,250,400	13 doz.+6	54	23,155
London and Canterbury (Sept. 1299–Sept. 1300)	31,183,200	336 doz.+10	1347	23,150

As Mr. Stewart did not have any documentary evidence for the Chester mint, he used the number of different dies represented in a particular size of sample of surviving coins to obtain an approximation of the number of dies used there.[1] The answer of fourteen obverse dies tallies well with existing documentary evidence.[2] According to the mint accounts four dozen dies were sent there, presumably in the form of 16 obverses and 32 reverses. If all these dies were used, then Chester had the lowest output of any of the provincial mints, with an average of 21,750 coins being made per obverse die. But the Chester mint was the last to open on 12 July and it closed down on 16 November, so perhaps some of the dies sent there had not worn out. For

giving a total for all the mints of £57,190; the York royal coins in Montrave numbered fifty-one (with four archiepiscopal), giving a York–Hull total of 68, and for all the mints, 223; in the final column, the figure for Newcastle should be £255·4, for York–Hull £261·3, and for the total £256·5. These amendments involve some consequential changes in the related text, but the argument is not affected.

[1] *NC* 1964, 298.

[2] P.R.O., Exchequer, Accounts Various, Mint, E. 101/288/30.

usually the clerks at the provincial mints collected several dozen dies from the Exchequer at once. In the case of Chester the clerk may have overestimated the amount of silver that would be brought to the mint and asked for more dies than he needed.

It is difficult to determine how many coins were struck from a single set of dies in 1300. At some mints, London, Canterbury, Chester, Exeter, and perhaps Newcastle, the average output per obverse die was 23,000 coins or less. In contrast, at Bristol and Hull, the dies were either of better quality, which hardly seems likely, or used nearer to their full capacity, and over 33,000 coins were on average struck from an obverse die. Both figures, therefore, need to be used, in order to obtain an estimate of how much money was coined at mints, such as the ecclesiastical ones, for which there are no regular mint accounts, but there are records of the number of dies issued to them. These figures can then be compared with the relative survival rates in hoards.

It is known, for example, that John de Sandale delivered to the Exchequer thirty-nine sets of dies for the episcopal mint at Durham between 21 May and the end of August 1300.[1] As the king complained about the poor quality of the Durham dies, it is more likely that they produced, on average, only 23,000 coins per obverse die (about £100) rather than the larger figure of 33,000. In that case the bishop would have struck approximately £3,900 between May and September 1300,[2] roughly the same amount that was coined at Exeter between June and December. If the Durham mint continued to strike coins at the same rate, then by December 1300 it would have coined about £7,000. But in the Montrave hoard there are only 20 Durham episcopal coins compared with 15 from Exeter, which might indicate that less than 23,000 coins were struck from each set of dies or that production slackened off after September.

The bishop was granted the use of only three sets of dies at a time. Before he could receive any new dies the Warden of his mint had to send the old used dies to the Exchequer. Consequently there was a constant traffic between Durham and the Exchequer at York, as the Warden, William Servat,[3] often did not wait until he had used all

[1] P.R.O., E. 159/73, mm. 29, 29d., 58d. (21 May 1 set, – May 10 sets, 17 June 8 sets, 27 June 12 sets, 23 August 8 sets).

[2] Presumably the dies delivered at the end of August were used in September.

[3] William Servat was originally a merchant of Cahors, but he settled in London in 1273 and spent the next twenty years trading in wool and spices, buying property in London and lending money to the king and others. He was also employed on royal

three sets, but would send just one or two sets, presumably in order that the mint need not stop working. The following figures give a good indication of the rapidity with which the Durham mint used up old dies and received new ones.

Reference	*Date (in 1300)*	*Number of old dies delivered at the Exchequer in exchange for new ones*
E. 159/73, m. 29d.	24 May	2 sets
,,	31 May	1 set
,,	11 June	2 sets
,,	17 June	3 sets
,,	25 June	2 sets
,,	2 July	3 sets
,,	16 July[1]	2 sets
E. 159/73, m. 58d.	23 August	3 sets
,,	3 September	3 sets
,,	8 September[2]	2 sets

Thus about £800 a month appears to have been coined at Durham with only three sets of dies in use and presumably only three moneyers at work.[3] One can therefore speculate upon how much money might be coined by one moneyer in one day. For example, on 17 June

business, being sent to Norway in the train of the bishop of Durham in 1290 and going with him again to France in 1294. It is uncertain when he became Warden and for how long, but Anthony Bek, having become acquainted with his energies and abilities in the royal service, probably appointed him to head his Durham mint during the recoinage of pollards and crockards. For full details of Servat's career see Franz Arens, 'Wilhelm Servat von Cahors als Kaufmann in London (1272–1320)', *Viertel Jahrschrift fur Social und Wirtschaftsgeschichte*, v. xi (Leipzig, 1908), 477–514.

[1] There is a definite break in the records between 16 July and 23 August, during which time William Servat probably used at least 10 sets of dies. For by 16 July 31 sets of dies had been sent to the Exchequer for the use of the Durham mint, but only 15 sets had actually been delivered to them. Some of this slack was obviously used up in the early part of August before the Exchequer received a new delivery of dies on the 23rd.

[2] According to the Memoranda Roll, on 18 September, Philip de Willoughby received in the Exchequer four piles and six trussels and the same day delivered to the servant of William Servat seven piles and six trussels. If this entry is correct and not due to a scribal error, then the bishop of Durham was receiving a special concession. For he had never had the use of more than three dies, i.e. three piles and six trussels, and suddenly he was given seven piles. If he did receive them then it was probably the fault of a minor clerk at the exchequer, who was unfamiliar with the regular routine. There is no doubt that new or inefficient clerks were working in the Exchequer at this time, for on 3 October William Servat sent two used piles and six used trussels to the Exchequer and received in return three piles and six trussels, instead of the two piles to which he was entitled.

[3] Mint workers were divided into two categories. The workers, *operarii* who were responsible for the preliminary processes such as making the blanks, and the moneyers, *monetarii*, who struck the blank with the die. Usually more workers than moneyers were employed in a mint, as the number of moneyers was limited by the number of dies available.

William Servat sent to the Exchequer at York three sets of used dies, so that there was none left at Durham. His clerk, however, was only given two sets of new dies and did not receive the third set until the bishop of Durham had claimed that he ought to be delivered three dies.[1] The moneyers could not have started using the two new sets of dies before 18 June and they must have been worn out by 24 June, if they were returned to the Exchequer on 25 June. Thus within a period of seven days perhaps 46,000 coins were struck, making over 6,500 coins a day. If three moneyers were working at the same time (and this itself can only be a hypothesis) each would have been responsible for striking nearly 2,200 coins a day. If they worked a ten-hour day, then they would have struck 220 an hour, or nearly four a minute; if they worked an eight-hour day, then they would have struck roughly five a minute. On the other hand, between 2 and 16 July, a period of thirteen working days, only two sets of dies were used, so that the average number of coins per day was approximately 3,538. There are several possible reasons for this decline in production. Perhaps one of the moneyers was sick, or not much silver was being brought to the mint at that time. Clearly far more coins could be struck when the mint was working full time. Between 23 August and 3 September, a period of ten working days, three sets of dies were worn out. Assuming that 69,000 coins were struck from those dies, then once again over 6,500 coins were struck each day.

Coins were struck at a similar rate in the archiepiscopal mint at York, during the brief time it was open. The archbishop had the right to coin money whenever the king opened a royal mint at York and had exercised that right in 1280 and 1281, during the general recoinage at that time. But when the king reopened the provincial mints to deal with the recoinage of pollards and crockards, he established a royal mint at Kingston-on-Hull and not at York.[2] Hull, however, was within the diocese of York and the archbishop felt that the same principle should apply, so he sought a renewal of his right to make coins.[3] Edward I was reluctant to grant this request and it was not until 28 June, after he had presumably decided to establish his own

[1] P.R.O. E. 159/73, m. 29d.

[2] It is clear from the king's writ of 9 June (see Appendix A) that the royal mint at York was not yet in operation.

[3] Letter from the archbishop to Master Thomas de Eadburbiry, canon of York, requesting his help in procuring for the see the renewal of the rights and the implements of coining money. *Register of Thomas of Corbridge, Archbishop of York, 1300–4* (Surtees Society, v, 141), p. 35, no. 912. The full version is printed in *Letters from the Northern Registers* ed. James Raine (Rolls Series, London, 1873), 142–3.

mint at York, that the archbishop was granted possession of two dies.[1] He did not receive them until a month later when two piles and four trussels were delivered to his clerk, William de Southill.[2] From then until the 18 December, when the mint closed down, the moneyers appear to have worked continuously, judging by the number of dies that they used.

Detailed figures are not available for the whole of this period, but it is known that at the end of August, the whole of September and the beginning of October, the following dies were delivered to the archbishop's clerk:[3]

Date	*Dies received*
25 August	2 trussels
27 August	1 trussel+2 piles
1 September	4 trussels
5 September	2 piles+2 trussels
6 September	2 trussels
12 September	2 trussels
19 September	1 trussel
1 October	2 piles+4 trussels
7 October	2 trussels

It is clear from the above figures that the archbishop used more trussels per pile than was customary. Instead of the usual 1:2 ratio (one pile to two trussels), he used three or four trussels to each pile.[4] On 27 August, for example, he received two new piles and when he returned them ten days later, on 5 September, he had used six trussels, a ratio of 1:3. This second pair of piles, however, he kept for twenty-seven days, until 1 October, by which time he had used up nine trussels, a ratio of slightly over 1:4. But this was unusual. During the whole period 25 August to 7 October the mint used six piles and twenty trussels, a ratio of just over 1:3.

There are several possible explanations for this. The archbishop may simply have had a ham-fisted hammerman, who split the trussels. On the other hand, he may have deliberately decided to use each pile until it was completely worn out, employing as many trussels as

[1] *Calendar Close Rolls, 1296–1302*, 359. The exact date of the opening of the royal mint at York is uncertain. The Memoranda Roll (E. 159/73, m. 29d.) first mentions it on 26 July, when Edmund de St. Clement, clerk, was given two dozen new dies in return for two dozen old, so that by then it must have been working for two or three weeks at least.

[2] P.R.O. E. 159/73, mm. 29d., 57.

[3] P.R.O. E. 159/73, m. 58d.

[4] Dies were supplied by the London mint in the usual ratio, e.g. the consignment received in York on 1 October contained twelve piles and twenty-four trussels, so that presumably many of the piles were not used by the time the mint closed.

he needed. If this were true, then each pile would have been used to stamp more than the 33,000 coins that was the average at the royal mint at York.[1]

Any conclusions that can be drawn from this paper must necessarily be tentative. But it does appear as if 30,000–35,000 coins was the average output of a set of dies and that the low output which characterized many of the mints in 1300 was the result of inferior dies. The ecclesiastical mints, if we judge by the number of dies that they used, seem to have been working at the same rate or even harder than the royal mints. Finally it is possible, although by no means certain, that the archbishop of York preferred to use three or four trussels to one pile, instead of the more normal 1:2 ratio. More precise conclusions will have to wait for more detailed numismatic studies.

APPENDIX A

Letter to John de Sandale concerning the dies—9 June 1300 (E. 368/71, m. 56, E. 159/73, m. 61).

Rex Johanni de Sandale, custodi cambii Londoniensis, salutem. Cum nuper coram venerabili patre W. Coventre' et Lych' episcopo et aliis de consilio regis ordinatum esset et vobis iniunctum quod iuxta ordinationem illam fieri et fabricari faceretis cuneos idoneos et sufficientes in competenti latitudine et sufficientes profundatos pro cambiis nostris in diversis locis regni nostri transmittendos, vos ut tardi et remissi commodum et necessitatem nostram hiis diebus paululum considerantes nullam quasi super hoc executionem facere curantes presertim cum illud modicum quod per vos factum est; insufficiens est, nam forma cunei est minus parva in circumferentia, nec cuneus est bene cavatus seu profundatus et sic denarius est nimis parvus, et impressio vix apparens unde inter denarium et obolum parva est differentia ad dampnum nostrum et incolarum nostrorum et aliorum cambiare volentium non modicum de quo vehementer admiramur sicut et debemus vobis mandamus quod omnium dilatione postposita cuneos ad sufficientiam iuxta ordinationem predictam et quod sint competentis latitudinis circularis, et bene cavati et profundati. Ita quod impressio sic evidens et aperta fieri et fabricari faciatis et de illis mittatis

[1] The royal mint at York did not at first follow the archbishop's example and used the more normal 1:2 ratio, returning twelve used piles and twenty-four trussels on 28 August, another twelve piles and twenty-four trussels on 6 September, and eight piles and sixteen trussels on 22 September. But on 7 October the clerk, who appears to have been the same for both mints, just exchanged twelve old trussels for new ones. This could indicate that officials, influenced by the practice in the archbishop's mint, had decided that piles could and should be used for longer than the life of two trussels.

apud Eboracum cuneos ad sufficientiam pro cambio nostro de Kingston super Hull', et Novi Castri super Tynam, et pro cambio Dunholmi, et etiam cuneos ad sufficientiam apud Exon', Bristol', Cestr', et ad alia loca prout vobis constat per ordinationem antedictam et hoc cum omnium celeritate qua fieri poterit. Attendentes si quidem quod si dilationem aliqualem super hoc inveniremus vos indignationem nostram in perpetuum vestris de meritis incurremus. Teste Thes. ix die Junii.

APPENDIX B

MINTS OF LONDON AND CANTERBURY

Date	*Total dies*	*Presumed no. of obverses*[1]	*Total coins*[2] *issued*	*Coins per obverse die*
Sept. 1281–Oct. 1283	265 doz.	1,060	28,166,640[3]	26,572
Oct. 1283–May 1285	110 doz.+10	443	14,660,160[3]	33,093
May 1285–Aug. 1286	156 doz.+7	626	24,255,120	38,744
Aug. 1286–June 1287	123 doz.	492	17,342,400	35,248
June 1287–Nov. 1287	67 doz.+7	270	10,570,560	39,150
Nov. 1287–Nov. 1288 (London)	49 doz.	196	8,983,200	45,833
—— (Canterbury)	31 doz.+4	125	3,616,800	28,934
Nov. 1288–Apr. 1290 (London)	35 doz.+1	140	4,272,000	30,514
Apr.–July 1290 (London)	6 doz.+4	25	1,219,200	48,768
Nov. 1288–July 1290 (Canterbury)	14 doz.	56	1,296,000	23,143
July 1290–Sept. 1291	4½ doz.	18	1,224,000	68,000
Sept. 1291–Sept. 1292	13½ doz.	54	1,236,000	22,888
Sept. 1292–Sept. 1293	6 doz.	24	837,600	34,900
Sept. 1293–Sept. 1294	15 doz.+3	61	2,404,800	39,423
Sept. 1294–Sept. 1295 (London only)	14½ doz.	58	2,294,400	39,559
Sept. 1295–Sept. 1296 (London only)	9 doz.	36	1,728,000	48,000
Dec. 1296–Sept. 1297 (London only)	15 doz.+10	63	2,080,800	33,029
Sept. 1297–Oct. 1298 (London only)	4½ doz.	18	1,044,000	58,000
Oct. 1298–Sept. 1299 (London only)	35 doz.+8	143	3,369,600	23,564

[1] A 1:2 ratio was assumed.

[2] These figures are taken from the mint accounts. The number of total coins was obtained by multiplying the sum of pennies by 240, the sum of halfpennies by 480 and farthings by 960. Unless otherwise stated the figures are for both London and Canterbury.

[3] These two totals are estimates because the mint accounts give only the amount of silver purchased.

Date	*Total dies*	*Presumed no. of obverses*	*Total coins issued*	*Coins per obverse die*
Sept. 1299–Sept. 1300	336 doz.+10	1,347	31,183,200	23,150
Sept. 1300–Sept. 1301	101 doz.+3	405	13,933,440	34,402
Sept. 1301–Sept. 1302	12 doz.	48	3,561,600	74,200
Sept. 1302–Sept. 1303	14 doz.	56	3,134,400	55,971
Sept. 1303–Sept. 1304	70 doz.+11	284	8,788,800	30,946
Sept. 1304–Apr. 1305	96 doz.	384	9,984,480	26,001
May 1305–Sept. 1305	91 doz.	364	16,384,800	45,013
Sept. 1305–Sept. 1306	160 doz.	640	24,018,720	37,529
Sept. 1306–Sept. 1307	240 doz.	960	34,785,840	36,235
Sept. 1307–Sept. 1308	263 doz.	1,052	28,665,100	27,248
Sept. 1308–Sept. 1309	267 doz.	1,068	34,401,720	32,211
Sept. 1309–Sept. 1310	76 doz.	304	12,918,480	42,495
No accounts 1310–11				
9 Oct. 1311–23 Oct. 1311	4 doz.	16	110,040	6,877
Oct. 1311–Sept. 1312	33 doz.	132	4,710,240	35,684
Sept. 1312–Sept. 1313	22 doz.	88	3,640,215	41,306
Sept. 1313–Sept. 1314	120 doz.+8	482	16,250,112	33,714
Sept. 1314–Feb. 1315	31 doz.	124	4,281,448	34,528
Feb. 1315–Sept. 1315	51 doz.	204	4,144,320	20,315
Oct. 1315–June 1316	34 doz.	136	735,840	5,411
June 1316–Sept. 1316	8 doz.	32	622,040	19,439
Sept. 1316–Apr. 1317	20 doz.	80	1,598,400	19,980
Apr. 1317–Sept. 1317	28 doz.+6	114	4,442,640	38,971
Oct. 1317–Sept. 1318	76 doz.	304	8,554,560	28,140
Oct. 1318–Sept. 1319	50 doz.	200	6,610,560	33,053
Sept. 1319–Aug. 1320	29 doz.	116	5,244,720	45,213
Aug. 1320–Sept. 1320 (Canterbury only)	4 doz.	16	621,600	38,850
Oct. 1320–Sept. 1321	23 doz.	92	3,772,320	41,003
Oct. 1321–Sept. 1322	15 doz.	60	1,317,120	21,952
Oct. 1322–Sept. 1323	13 doz.	52	660,960	12,711
Oct. 1323–Sept. 1324 (London only)	16 doz.	64	502,800	12,673
Sept 1324–Sept. 1325 (London only)	—	—	108,960	
Sept. 1325–Sept. 1326 (London only)	—	—	135,720	
Sept. 1326–Feb. 1327 (London only)	—	—	63,600	

FOUR NOTES ON UNPUBLISHED IRISH FINDS OF THE SIXTEENTH AND SEVENTEENTH CENTURIES

By MICHAEL DOLLEY *and* COLM GALLAGHER

1. AN EARLY SIXTEENTH-CENTURY COIN-FIND FROM NORTH CONNACHT

On 10 July 1951 a Mr. Patrick Carr came across a number of coins while working in a bog at a spot called Clooncarn at Johnston's Bridge near Dromod in Co. Leitrim. Dromod or Drumod lies on the eastern shores of Lough Bofin between Mohill and Roosky in the extreme south-eastern corner of the county. The 1951 discovery consisted of fifteen silver coins that had apparently been concealed in a cloth bag which unfortunately disintegrated on being touched. With commendable promptitude Mr. Carr brought his find to the notice of the authorities of the National Museum of Ireland, and, as is normal in Ireland, an honest finder did not have to wait more than a very few weeks before receiving from the Royal Irish Academy a generously calculated reward. For the next few years, however, the Art and Industrial Division of the National Museum was without its Keeper, and circumstances were such that it was not practicable to arrange for publication. This omission is now rectified, and through the kindness of the retiring Keeper, Dr. William O'Sullivan, M.R.I.A., there is offered the following account of a find which has proved to be, as it happens, of some interest for Irish and English numismatists alike. Three of the coins are Anglo-Irish, eleven English, and one continental, and their dates span the last third of the fifteenth and first third of the sixteenth centuries. They may be listed as follows, weights being to the nearest half grain:

Lordship of Ireland

EDWARD IV

1. Trim groat: English type with Irish title only: issue of c. 1470 (?): i.m. plain cross/plain cross: cf. Coffey,[1] p. 40, no. 1; Aquilla Smith,[2] pl. 3, 60 var. (/RIΩ+/). Clipped, pierced, and discoloured. 23½ grains.

[1] G. Coffey, *Guide to the Collection of Irish Antiquities: Anglo-Irish Coins*, Dublin, 1911.

[2] A. Smith, 'The Irish Coins of Edward the Fourth', *TRIA* xix (1839–43), 1–49.

2. Waterford groat: English type with Irish title only: issue of c. 1470 (?): i.m. cross fitchée (?)/plain cross: G on breast and little crosses in second and fourth quarters on reverse: cf. Coffey, p. 39, no. 27; Aquilla Smith, pl. 3, 69 var. Clipped and discoloured. 30½ grains.

HENRY VII

3. Dublin groat: facing bust type with obverse tressure, open crown and plain cross ends: issue of c. 1502 (?): cf. Coffey, p. 57, no. 9; Aquilla Smith,[1] pl. 2, 27 var. (/POSVI/ and (?) /ΠΩVΜ⁻/). Clipped and discoloured. 26½ grains.

Kingdom of England

EDWARD IV

4. Second reign, London groat: i.m. pierced cross (pellet in third quarter)/pierced cross (pellet in fourth quarter): fleured cusps, later lettering: Blunt and Whitton,[2] XVIII*b*, 4, rev. var. 9 (sun after DGVM); North[3] 1631. 44 grains.

HENRY VII

5. London groat: facing-bust issue, double-arched crown, saltire stops, plainer cross-ends: i.m. anchor (inverted)/anchor: Potter and Winstanley[4] III*c*, cross-end 9; North 1705. 46½ grains.

6. Canterbury half-groat: facing-bust issue, double-arched crown, rosette stops: i.m. tun/tun (? King and Archbishop Morton jointly): Potter & Winstanley, III*b*; North 1705. 20½ grains.

7. Exactly as previous coin. 20 grains.

8. York half-groat: facing-bust issue, tressure, open crown and saltire stops; i.m. martlet/martlet, keys flanking bust (Archbishop Savage): Potter and Winstanley, p. 298, type 2; North 1714. 20 grains.

9. Profile groat (London): i.m. pheon/pheon: Potter and Winstanley, p. 114, no. 5; North 1747. 43 grains.

10. Profile half-groat (Canterbury?): i.m. rose/rose: Potter and Winstanley, p. 117, no. 3; North 1750. 20 grains.

[1] A. Smith, 'The Irish Coins of Henry the Seventh', *TRIA* xix (1839–43), 50–84.

[2] C. E. Blunt and C. A. Whitton, 'The Coinages of Edward IV and of Henry VI (Restored)', *BNJ* xxv, i (1945/6), 4–59; ibid. xxv, ii (1947), 130–82; ibid. xxv, iii (1948), 291–339.

[3] J. J. North, *English Hammered Coinage*, ii, London, 1960.

[4] W. J. W. Potter and E. J. Winstanley, 'The Coinage of Henry VII', *BNJ* xxx, ii (1961), 262–301; ibid. xxxi (1962), 109–24; ibid., xxxii (1963), 140–60. The condition of the Clooncarn coins does not allow any confident refinement of the attributions proposed in those cases where the 1961–3 papers propose still further subdivision of the classes.

HENRY VIII

11. Wolsey coinage groat (London): heavy-jowled portrait, DI×G and RRAC: i.m. rose/rose: Whitton,[1] rose (1); North 1797. 42½ grains.

12. Wolsey coinage groat (London): Roman-nosed portrait, D×C and RRANC: i.m. rose/rose: Whitton, rose (3); North 1797. 41½ grains.

13. Wolsey coinage groat (London): i.e. lis/lis: Whitton, normal type; North 1797. 41 grains.

14. Wolsey coinage York groat: letters T and W (*T*homas *W*olsey) flanking shield, cardinal's hat below: i.m. voided cross/voided cross: Whitton, normal type; North 1799. 39 grains.

Duchy of Burgundy

CHARLES THE BOLD

15. Double patard of Flanders: van Gelder and Hoc,[2] 23–3. 42 grains.

Interesting features of this find include the absence of the relatively common Anglo-Irish coins of Edward IV, Richard III, and Henry VII that have characteristically Irish types, and the existence of a certain prejudice against domestic issues might perhaps be inferred from this. Certainly the greenish patinations observed in the case of the Anglo-Irish coins in the hoard, and of them alone, could suggest that the Irish mints in the later fifteenth century were less successful than their English counterparts in maintaining sterling standard. For the English numismatist the find provides a not-unwelcome hint that the first two marks of the Wolsey coinage were in fact rose and lis. What is a little curious, though, is that the York groat of the same issue, a coin that must be one of the latest in the find and which is not obviously clipped or worn, should prove to be significantly lighter than its fellows from the London mint, and it would be interesting to have a note of the weights of other York groats of the period which have hoard-provenances. It is generally true throughout the period that control of standards in provincial mints had a tendency to be less rigorous, though admittedly in this instance one might have expected that any widespread abuse of this kind would have figured in the eventual indictment of the cardinal which alleged that the

[1] C. A. Whitton, 'The Coinages of Henry VIII and Edward VI in Henry's Name', *BNJ* xxvi, i (1949), 56–89; ibid. xxvi, ii (1950), 171–212; ibid. xxvi, iii (1951), 290–332.

[2] H. Enno van Gelder and M. Hoc, *Les Monnaies des Pays-Bas bourguignons et espagnols, 1434–1713*, Amsterdam, 1960.

striking of the denomination in the archiepiscopal mint itself constituted an infringement of the royal prerogative. However this may be, Wolsey groats do not occur all that frequently in hoards, and the new Irish provenance must be considered notable. Less remarkable perhaps is the inclusion of the Burgundian double patard. Already on record are at least two other Irish finds with examples of one of the very few foreign coins to enjoy the status of legal tender in England,[1] the perhaps somewhat earlier hoard from Kilgorman near Courtown on the coast of Co. Wexford,[2] and the very much later hoard from an unrecorded spot in Co. Down.[3]

This brings us to the question of the date of the loss or concealment of the Clooncarn find. The latest coins are the London and York groats of Henry VIII which belong by definition after the great currency reform of 1526. A certain lapse of time, too, must surely be allowed for the duration of the rose mark and its supersession by lis, and also for the coins in question to be brought into Ireland. On the other hand, there are some significant absentees, and we might particularize the arrow-marked London groats which seem to belong not all that much after c. 1530, Canterbury half-groats with Warham's late cross patonce and 'T' marks and of Cranmer, not to mention the Anglo-Irish 'harps' and their halves which seem first to have been struck in 1533 or 1534. All in all, then, a date c. 1530 would seem to have much to commend it, and certainly the find seems appreciably earlier than the hoards from Askeaton in Co. Limerick,[4] and Cloonsharragh in the Dingle peninsula in Co. Kerry,[5] which seem certainly to be associated with the revolt of Silken Thomas and its aftermath. The Askeaton hoard, incidentally, also has lis as the latest mark of its English groats, but does include the Warham and Cranmer half-groats, while a further complication is provided by the little find from Ballyholme near Bangor in Co. Down[6] which seems to have been composed entirely of lis-marked groats. Was there

[1] P. Spufford, 'Burgundian Double Patards in Late Medieval England', *BNJ* xxxiii (1964), 110–17.

[2] *JRSAI* xvii (1885/6), 521–3.

[3] G. C. Brooke, 'The English and Irish Coinages of 1542–1544', *NC* 1923, 260–9; cf. R. H. M. Dolley and W. A. Seaby, 'Two Neglected Finds of Coins of Henry VIII from Co. Down', *NC* 1966, 217–19.

[4] This major hoard discovered in 1955 and likewise acquired by the National Museum of Ireland is the subject of an illustrated paper by the present writers with Mr. W. A. Seaby in the 1968 *BNJ*.

[5] M. Dolley, 'An Early Sixteenth-century Coin-Hoard from the Eastern Slopes of Mount Brandon', *North Munster Antiquarian Journal*, x, 2 (1967), 223–5.

[6] Dolley and Seaby, op. cit., 218 and 219.

perhaps an injection of lis-marked groats into the Irish economy in the years immediately preceding Kildare's final disgrace? All in all, though, a date for the concealment of the Clooncarn find in or about the year 1530 seems reasonable on purely numismatic grounds, and it is a curious fact that the so-called *Annals of Loch Cé* record *s.a.* 1530 the devastation by the O'Donnell of an area almost exactly corresponding to the modern barony of Leitrim.[1] It is perhaps too tempting to associate our little find with precisely these marchings and counter-marchings, and the more so when we learn from the very same annal that the O'Donnell was not ignorant of the use of coin, one consequence of this irruption into Connacht being a tribute from O'Connor Roe calculated at sixpence to the given measure of land.[2] For the present, though, it may seem more prudent not to insist on a dating as close as c. 1530, but to prefer the wider bracket c. 1530–5 outside of which the concealment of the coins seems very unlikely indeed to fall.

M. D.

2. TWO FINDS OF COINS OF HENRY VIII

The purpose of this note is to put on record two small finds of silver coins of Henry VIII which are preserved in the National Museum of Ireland. Each in its different way throws a measure of light on the ordering of the Anglo-Irish series at this period, and we are very grateful to Dr. William O'Sullivan, M.R.I.A., for permission to publish them here. The smaller was acquired in the spring of 1949, the finder being a lad by the name of John Connolly of Rossinver in Co. Leitrim. The findspot is indicated as the townland of Ross in the same parish, and there is no record of any container. Needless to say the boy was rewarded by the Royal Irish Academy within a few weeks after the find was brought to the notice of the museum, and the delay in publication is due solely to the fact that shortly afterwards the collection was left for a number of years without its permanent head. Rossinver, it may be added for the benefit of non-Irish readers, lies just to the south of Lough Melvin in the extreme north of the county and about half-way between Belleek and Manorhamilton.

[1] W. M. Hennessy, *The Annals of Loch Cé etc.*, London, 1871, vol. ii, 271.

[2] The devastation and the tribute alike are also recorded in the *Annals of Connacht* (ed. A. M. Freeman, Dublin, 1944, 673), but discussion of the relationship between the two sources at this point lies outside the scope of a numismatic note.

The find consists of nine of the 'harps' of Henry VIII and of a solitary English 'Wolsey' groat. The condition of the pieces is generally poor, and all the coins exhibit in some degree a brownish (iron oxide?) discoloration. In the case of the coins numbered (6), (7), and (10) in the listing that follows, disfigurement is major, while coin (9) has been rendered almost illegible in parts by what amounts to corrosion. Weights are to the nearest half grain:

Lordship of Ireland

HENRY VIII

1. 'Harp': i.m. crown/crown, initials H A: C-B[1] 5 and 6. 33½ grains.
2. 'Harp': i.m. crown/crown, initials H A: C-B 7. 34 grains.
3. 'Harp': i.m. crown/crown, initials H I: C-B 16. 33 grains.
4. 'Harp': i.m. crown/crown, initials H I: C-B 20. 33 grains.
5. 'Harp': i.m. crown/crown, initials H I: C-B 20 (diff. dies from previous coin). 35 grains.
6. 'Harp': i.m. crown/crown, initials H I: C-B 22. 32½ grains.
7. 'Harp': i.m. crown/crown, initials H R (?): C-B 24 (?). 27½ grains.
8. 'Harp': i.m. trefoil/trefoil, initials H R: C-B 38/40 (?). 28 grains.

Kingdom of Ireland

HENRY VIII

9. REX 'harp': i.m. trefoil/trefoil, initials H R: C-B 42/43 (?). 27 grains.

Kingdom of England

HENRY VIII

10. Second ('Wolsey') coinage groat (London): i.m. lis/lis (FRANCE) Whitton,[2] p. 207, (iv) 2 (?); North[3] 1797. 36 grains.

The ten coins span a period of a dozen or so years. The earliest is a *salfás*[4] English groat which belongs to the second phase of the so-called 'Wolsey' coinage begun in 1526. Next are the two *dominick*[5] groats with the initials of Henry and Anne Boleyn which can only belong within a year on either side of 1534.[6] The latest coin is the

[1] R. Carlyon-Britton, 'Henry VIII Harp Groats and Harp Half-groats and Edward VI Harp Groats', *NC* 1954, 134–40. The die-references are to the pull-out table opposite p. 140, and indicate identity of reading but not necessarily die identity.

[2] C. A. Whitton, op. cit. (*supra*, p. 221, n. 1).

[3] J. J. North, op. cit. (*supra*, p. 220, n. 3).

[4] For an explanation of this hitherto baffling term see now M. Dolley and G. MacNiocaill, 'Some Coin-Names in *Ceart Uí Néill*', *Studia Celtica* ii (1967), 119–24.

[5] For an explanation of this term see M. Dolley, 'The Identity of the "Dominick Grote" ', *NC* 1967, 213–16.

[6] Cf. the full-length study of the 'harps' by M. Dolley and W. D. Hackmann which it is hoped will appear in the course of next year.

'harp' with the REX title, a piece which Brooke[1] would have dated to the summer of 1542 but which may be no later than the summer of 1541.[2] Absent from the find are the relatively common REX 'harps' from the later issues, and it is tempting to suppose that the hoard was brought together and concealed in or about the year 1542. That the coins are so light would be attributed in this case to the circumstances of their concealment, and to be stressed is the corrosion observed in the case of the latest coin which is also one of the two most debased. On the other hand, it is known that Irish hoarders eschewed as far as practicable the baser issues of Henry VIII and his immediate successors, and it might be argued that the single REX groat is present from oversight. In this case, the hoard could have been hidden many years after 1542—the *dominick* groat was current a whole century later as is known both from documentary and from hoard evidence.[3] Our own feeling is that the find in fact belongs within a year or so of the date of its latest coin, but this does seem to be a case where the formula 'After 1541' would be appropriate.

The second of the two finds preserved in the National Museum of Ireland is represented by a dozen coins which exhibit a uniform greenish patination and which Dr. O'Sullivan came across in a small cardboard box in one of the cupboards. They constitute an obvious entity, but unfortunately had lost the documentation that might have supplied details of the findspot and circumstances of discovery. It may be assumed, though, that there was no container, and it is possible that one day a check through the records of the Royal Irish Academy may give a clue to the whereabouts of the file with the relevant information. It must be remembered that the decade 1940–50 was not an easy one where the National Museum of Ireland was concerned, and for the Art and Industrial Division the staffing problem continued for several more years. Eight of the coins are 'harps', and four of them *salfás* English groats. Each series is listed in what is believed to be the correct chronological sequence, and once again weights are to the nearest half-grain:

Lordship of Ireland

HENRY VIII

1. 'Harp': i.m. crown/crown, initials H A: C-B 8. 36½ grains.

[1] G. C. Brooke, 'The English and Irish Coinages of 1542–1544', *NC* 1923, 260–9.
[2] Dolley and Hackmann, op. cit. [*in the press*].
[3] *Supra*, p. 224, n. 5. A note on the Galway Courthouse find is with the editor of the *Galway Archaeological Journal*. For an Elizabethan hoard with the denomination see *infra*, pp. 227–30.

2. 'Harp': i.m. trefoil/trefoil, initials H R: C-B 39. 37½ grains.

3. 'Harp': i.m. trefoil/trefoil, initials H R: C-B 39 var. (VIII and RU)/32. 36 grains.

4. 'Harp': i.m. trefoil/trefoil, initials H R: C-B 39 var. (VIII)/?: spike-piercing from reverse. 35½ grains.

5. 'Harp': i.m. trefoil/trefoil, initials H R: C-B 41 var. (VIII)/40. 38½ grains.

Kingdom of Ireland

HENRY VIII

6. REX 'harp': i.m. rose/rose, initials H R: stops saltires/slipped trefoils: C-B 76/79. 37 grains.

7. REX 'harp': i.m. rose/rose, initials H R: slipped trefoil stops: spike-piercing from obverse. 38 grains.

8. REX 'harp': i.m. lis/?, initials H R: stops slipped trefoils/saltires: C-B 66 (?). 37 grains.

Kingdom of England

HENRY VIII

9. First coinage groat (London): i.m. portcullis/portcullis (no chains): Whitton, p. 207, (iii) 2; North 1762: spike-piercing from reverse. 41½ grains.

10. Second 'Wolsey' coinage groat (London): i.m. rose/rose: third bust, DG and FRANC: Whitton, p. 207, (i) 3; North 1797. 45 (!) grains.

11. Second 'Wolsey' coinage groat (London): i.m. lis/lis: early H and broken M: Whitton, p. 207, (iv); North 1797: spike-piercing from reverse. 36 grains.

12. Second 'Wolsey' coinage groat (London): i.m. arrow/arrow: Whitton, p. 207, (viii), 2 (ANGLIE); North 1797. 39½ grains.

The earliest English coin could in theory belong as early as c. 1515, and the other English pieces belong to the late 1520s and to the 1530s. The Anglo-Irish element comprises one coin to be dated c. 1534, and seven belonging to the quinquennium c. 1540–5. After the lis mark debasement was dramatic—and immediately obvious as may be gathered from the reference to 'white' money in the *Annals, of the Four Masters*, *s.a.* 1545. It could be, then, that the find under discussion was put together at some considerably later date by a selective hoarder, and in this context it might be thought significant that all the trefoil-marked 'harps' read DOMINUS, and that all the coins in the find are at least 8 oz. fine. Once again, then, we

are forced to take refuge behind the formula 'After 1545' when suggesting a date for the concealment of the coins, though it must be confessed that the impression given by the find as a whole is that the coins, despite the mutilation of four of them, had not seen all that much circulation. Not to be ignored is the fact that the average weight of the 'harps' in this find is exactly 5½ grains more than the figure for their counterparts in the find from Rossinver, and approximates to that of the long runs of specimens in the Royal Irish Academy's cabinet recorded by Coffey.[1]

M. D.
C. G.

3. A LATE TUDOR COIN-HOARD FROM CO. MAYO

About the year 1950 an interesting discovery of coins was made in the townland of Ballybrooney in the parish of Ballysokerry or Ballysakeery a little to the north and west of the half-way point on the road between Ballina and Killala in the north of Co. Mayo. The finder was a youth, Michael Christopher Walshe, now of Ennis Road, Gort, Co. Galway, and at the time he was helping his father to remove rocks from one of his fields as a preliminary to ploughing. Digging at the base of one of the boulders he came across a little pile of 42 silver coins. There was no trace of any container, but it is possible that the coins had been wrapped in a piece of material which had subsequently decayed. The boy at once cycled all the way into Ballina to report the discovery, and through his uncle Mr. Gerald P. Durkan informed the authorities of the National Museum of Ireland. At the time it was not possible to arrange for the publication of the hoard, but the finder was of course suitably rewarded in a matter of weeks. For permission to publish the following account of the hoard we are once again indebted to the kindness of Dr. William O'Sullivan, M.R.I.A., and for additional details concerning the actual discovery a most helpful informant has been the above-mentioned Mr. Gerald P. Durkan of Church Street, Killala.

The forty-two coins fall into two distinct groups, Anglo-Irish 'harps' of Henry VIII, significantly all with the early initial marks and reading DOMINUS, and English *salfás* money of Elizabeth I with a stray groat of Henry VIII. Thus the hoard illustrates very

[1] G. Coffey, op. cit. (*supra*, p. 219, 1), 65–71 (but the 'seventh coinage' coins on pp. 68–70 in fact represent a Dublin coinage of Edward VI).

neatly contemporary preference for the early 'harps', because of their relative fineness, which is known from written records to have persisted for a whole century after their issue.[1] As already remarked, all thirteen of the 'harps' read DOMINUS, and they represent the 'dominick grotes' of the 1642 proclamation of the Confederate Catholics. On the other hand, this preferred fineness was only relative, and that the coins were only some nine or ten ounces fine is only too clear from their present patination. Of the thirteen 'harps' nine are disfigured by a greenish corrosion sufficient to make identification difficult, and traces of this oxidation can be detected on some of the English pieces with which they had been in direct contact. Apart from this, though, the run of the twenty-nine English coins also are in comparatively poor condition, an additional argument that the finder was not mistaken when he claimed that there was no container, and the hoard is one that could very easily have been dismissed locally as of no possible significance, and so not been brought to the notice of the authorities.

A list of the hoard is as follows, and weights are to the nearest half of a grain:

Lordship of Ireland

HENRY VIII

'*Harps*' ('*Dominick Grotes*')

(*a*) *With initial-mark crown and crowned initials* H A

1. C-B[2] 3. 32½ grains.
2. C-B 3/4?. 34 grains.

(*b*) *With initial-mark crown and crowned initials* H I

3. C-B 14 var. (i.m. clear of legend). 34 grains.
4. C-B 20. 33½ grains.
5. C-B 22. 34 grains.

(*c*) *With initial-mark crown and crowned initials* H K

6. C-B 29. 35 grains.

(*d*) *With initial-mark crown/trefoil and crowned initials* H R

7. C-B 34. 30½ grains.

(*e*) *With initial-mark trefoil and crowned initials* H R

8. C-B 35 var./41 (i.m. unaltered) pierced. 32 grains.
9. C-B 38. 33 grains.

[1] M. Dolley, op. cit. (*supra*, p. 224, n. 5).
[2] R. Carlyon-Britton, op. cit. (*supra*, p. 224, n. 1).

10. C-B 39/43 (?) pierced. 30 grains.
11. C-B 39/43 (?) different dies. 27½ grains.
12. C-B 41/?. 31 grains.
13. C-B 42/? badly cracked. 34 grains.

Kingdom of England

HENRY VIII

14. Second ('Wolsey') coinage groat (London): initial-mark lis/lis: Whitton,[1] p. 207, v *a*; North[2] 1797. 39½ grains.

ELIZABETH[3]

Shilling

15. Sixth coinage: initial-mark scallop: North 2014. 86 grains.

Sixpences

Third coinage (*North 1997*)

16. Broad arrow head: ANG! FR! ET HI! REGINA/MEV!: 1561. 46 grains.
17. Broad arrow head: ANG! FR! ET·HI! REGINA/MEVM: 1561. 45 grains.
18. Broad arrow head: ANG! FR! ET HI! REGINA/MEV!: 1564 (unaltered). 43½ grains.
19. Lion: REGNA? (slipped striking?): 1567. 46 grains.
20. Lion: 1567. 41½ grains.
21. Crown: 1568. 46 grains.
22. Castle: 1570. 44 grains.
23. Castle: 1571. 45½ grains.

Fourth coinage (*again North 1997*)

24. Ermine: 1572. 45½ grains.
25. Ermine: 1572. 47 grains.
26. Ermine: 1572 (2 over 2 inverted?). 45 grains.
27. Ermine: 1573 (early bust). 46 grains.
28. Ermine: 1573 (later bust). 46 grains.
29. Eglantine: 1575 (?). 43½ grains.
30. Eglantine: 1575. 45½ grains.
31. Eglantine: 1576. 42 grains.
32. Eglantine: 1577 (altered from 1576). 44 grains.

[1] C. A. Whitton, op. cit. (*supra*, p. 221, n. 1).
[2] J. J. North, op. cit. (*supra*, p. 220, n. 3).
[3] For the fundamental classification of the English coins of this reign see I. D. Brown's magisterial study 'Some Notes on the Coinage of Elizabeth I with Special Reference to her Coined Silver', *BNJ* XXVIII, iii (1957), 568–603.

Fifth coinage (*again North 1997*)

33. Plain cross: 1578 (altered from 1577). 42½ grains.
34. Plain cross: 1578. 47 grains.
35. Plain cross: 1578. 49½ grains.
36. Plain cross: 1578. 47½ grains.
37. Long cross: 1580. 46½ grains.
38. Long cross: 1581. 47½ grains.
39. Sword: 1582. 46 grains.

Sixth coinage (*North 2015*)

40. Scallop: 1585. 49 grains.
41. Hand: 1590. 45½ grains.
42. Hand: 1590. 48 grains.

It is unlikely that a hoard of this composition was concealed very much after the date of its latest coins, and especially when they exhibit remarkably little wear. A very plausible association would be with Bingham's energetic and repressive government of Connacht which may be said to have reached a new pitch of intensity in 1590, and it should be remembered that by the early 1590s the whole of north Connacht was assuming new significance inasmuch as Sligo was of cardinal importance for the containing of the threat to the entire English position in Ireland posed by the unlooked-for *rapprochement* between the O'Neill and the O'Donnell. There is, however, no obvious incident of the early 1590s which might have occasioned the deposit of the hoard, and for the present we are reluctant to date concealment as late as the débâcle of 1595, and particularly since the shilling with initial-mark tun (1592–5) is perhaps the most common of all the English coins of the reign, and is known to have reached Ireland in substantial quantity.

M. D.
C. G.

4. AN ELEVEN YEARS' WAR COIN-HOARD FROM THE RIGHT BANK OF THE SHANNON

In the summer of 1954 Messrs. Michael Connor and John Kenny of Eyrecourt in Co. Galway were strengthening the embankment of the right bank of the Shannon in Slaghter townland just south of Meelick and approximately 5¾ miles upstream from the bridge at Portumna. About ten yards from the water and a foot below the surface of the ground they came across a neat little pile of silver

coins of the sixteenth and seventeenth centuries. They observed that the coins appeared to have been wrapped in a piece of cloth or a purse, but all trace of this had disappeared. The discovery was duly reported to the authorities of the National Museum of Ireland through the men's employers, the Electricity Supply Board, and within a matter of weeks the finders had been rewarded by the Royal Irish Academy. Unfortunately the condition of the coins was generally very poor, and few of the pieces are free from a reddish corrosion which in some cases makes exact identification very difficult. All twenty-one belong to the English series, and many evidence a very considerable degree of wear. The weights were obtained on a portable semi-automatic balance in grammes to the nearest two places of decimals, and have been converted to the nearest tenth of a grain with the assistance of the tables in *Grains and Grammes*. A listing of the coins is as follows:

ELIZABETH I

1. Second coinage shilling: i.m. cross crosslet/cross crosslet: North[1] 1985: buckled. 86·2 grains.

2. Second coinage shilling: i.m. martlet/martlet: North 1985: very worn. 83·5 grains.

3. Sixth coinage shilling: i.m. 𝔗/𝔗: North 2014. 91·2 grains.

4. *As previous coin*: double-struck. 92·4 grains.

5. Sixth coinage shilling: i.m. woolpack/woolpack: North 2014: rubbed. 94·3 grains.

6. Third coinage sixpence, 1569: i.m. crown/crown: North 1997: worn. 44·9 grains.

7. Third coinage sixpence, 1571: i.m. castle/castle: North 1997: worn. 40·4 grains.

8. Fourth coinage sixpence, 1573: i.m. ermine/ermine: North 1997: very worn. 40·9 grains.

9. Fourth coinage sixpence, 1577 (over 6?): i.m. eglantine/eglantine: North 1997: worn. 41·6 grains.

10. Fifth coinage sixpence, 1580: i.m. long cross/long cross: North 1997: worn. 40·3 grains.

11. *As previous coin*: heavy black patination confined to reverse. 41·2 grains.

12. Sixth coinage sixpence, 1591: i.m. hand/hand: North 2015. 39·5 grains.

[1] J. J. North, op. cit. (*supra*, p. 220, n. 3). The division of the Elizabethan pieces into coinages is again that set out by I. D. Brown (*supra*, p. 229, n. 3).

13. Sixth coinage sixpence, $159\frac{4}{3}$ (?): i.m. tun/tun: North 2015: worn. 45·3 grains.

14. Sixth coinage half-groat: i.m. tun/tun: North 2016: very worn. 12·6 grains.

JAMES I

15. Third coinage half-crown: i.m. thistle/thistle: North 2120. 224·8 grains.

16. First coinage shilling, second bust: i.m. thistle/thistle: North 2073. 93·0 grains.

17. Second coinage shilling, third bust: i.m. rose/(rose): North 2099. 91·4 grains.

18. Second coinage shilling, fourth bust: i.m. rose/rose: North 2100. 93·2 grains.

19. Second coinage sixpence, third bust, 1605: i.m. rose/rose: North 2102. 41·0 grains.

20. Second coinage sixpence, fourth bust, 1606: i.m. rose/rose: North 2103: worn. 44·6 grains.

CHARLES I

21. Group II half-crown: i.m. plume/plume: plume above shield: North 2206. 226·1 grains.

The latest coin in the hoard is the Charles I half-crown which can be assumed to have left the Tower mint in London in the course of the mint-year 1630/1. In point of fact the hoard may well have been concealed a whole decade later at the very least. As Mr. Seaby has pointed out,[1] in the seventeenth century English coin was slow to find its way across the Irish Sea, and it may be thought that the findspot on the west bank of the Shannon accords well with the hypothesis that the coins may have been concealed by an Ormonde or Inchiquin sympathizer attempting to escape eastwards when Connacht as a whole rallied to the Confederacy in 1642 after Clanricard's attempt to secure Galway City. What is interesting about the hoard is the relatively high proportion of half-crowns which account for almost a third of the face-value of the find. Incidentally this is the very first half-crown of James I to find its way to the Royal Irish Academy's cabinet housed in the National Museum of Ireland, and it is doubtful if more than half-a-dozen James I half-crowns are on record as having

[1] W. A. Seaby, 'Civil War Hoards in England and Ireland', *SCMB*, September 1968, 317 and 318.

been found in this island.[1] For permission to publish so exceptional a find in these pages the thanks of the writer are once more due to Dr. William O'Sullivan, M.R.I.A., while special facilities were given for the study of the coins by his assistant and now successor Mr. John Teahan, M.A.

M. D.

[1] Known to the writer are only five, three in the Abbeylands find and one apiece in the finds from Slaghter and Rathlin, cf. W. A. Seaby, *BNJ* xxix, ii (1959), 404–14.

EIGHTEEN BYZANTINE SCYPHATE COINS OF THE LATE 1200s

By H. L. WELLER

[SEE PLATES XI–XII]

Two years ago eighteen copper scyphate coins[1] from a find near Turkish Bergama were purchased together. They are of one period and of similar condition, and because of their scarcity form an interesting group. One may ask if they were minted at Nicaea or Constantinople, or compare them to the coins given to the empire of Thessalonica. I do not propose to answer such questions but to make available the details of the group's eleven different types.

There is no definite answer as to why the Byzantines created their cup-shaped or 'scyphate' coins. The writer accepts an artisan's answer, 'For strength'. This would be valid whether the metal were gold or silver or copper, and would permit 2-to-3-gm flans to be of 'respectable' size, to carry designs of some beauty, and to resist bending fairly well, but they were still liable to clipping.

In describing these coins the concave side—that which bears the representation of the prince—is called the reverse. In this series it is not usually disputed that the convex face of the coin—that which bears a single symbol or a legend, or a single Holy Figure with perhaps an invocation—is properly called the obverse. In attempting to describe the emperors' costumes on the coins below I shall refer to three areas: chest ornament, loros element, and skirt. All three, however, are usually part of the same ritual scarf, which perhaps for the wearer—but not to a great extent for the engraver—became simpler in its lines when a hole was worked into it for the head to go through. In front it hung down to the border of the tunic. From behind the wearer its greatest length was brought up across the midriff and draped over one arm. This was the 15 ft. loros at its simplest.

These eighteen coins may be listed, then, as forming eleven types, all with 180° die axis. There is one group of five, three groups of two, and the rest are single specimens. Below, an attempt is made to attribute them to successive emperors, but there are often few grounds for positive attribution. It is hoped, however, that the description of

[1] One is most probably billon.

each coin and the accompanying photographs[1] will be of use and stimulus to students of the Paleologan period.[2]

Type I

1. *Obv.* St. Tryphon, full length, standing on footstool. Nimbus; long robe, jewelled at collar and hem. Right hand in benediction before body. ⍟ / ₮V / fleur-de-lis to left; Φ / ω / Ṇ, with perhaps a second fleur-de-lis, to right. No border visible. Double struck.

Rev. The emperor standing, full length, crowned by the Mother of God on his left. His crown is angled rather than drooping, and has simple pendants. A tiny, featureless face. He holds a jewelled labarum in his right hand, which is turned awkwardly inwards at shoulder-level. The left hand holds a long akakia or volumen. Jewelled collar; ⁘ on chest; five-jewelled, turtle-back design at loros section; skirt shows seven-jewelled panel. One-line border. A difficult specimen, which yields, I believe, the letters - ω / - OC / - - / C of ΘЄ / O / Δω / POC / ΔЄ / C to the left. To the right, it does not give any suggestion of 'Palaeologus' or 'Porphyrogenitus', but there are parts of straight-backed letters - / P - / H - / Λ - - / K - / P - / C of . .] $\overline{\Theta V}$ PO / HC / ΛAC / KA / PI / C. (Theodore Lascaris) 3·0 gm. Copper, with brown incrustation **[Pl. XI. 1.]**

Attribution. Theodore I, 1204–22, or Theodore II, 1254–8. Cf. Sabatier, pl. lxiv. 7. This coin (no. 1) is not of the same type as *BMC Van*, 225 (Michael VIII). It will not fit the Ducas legends of Goodacre, 315 (Theodore II, with St. Tryphon on the ? rev.), unless ΔϬ / KACO is postulated.

Type II (*Unpublished*)

2. *Obv.* A four-armed cross, each limb of which is formed by two double lines which turn outwards to form a P within a P. The voided

[1] The careful casts of the Bergama coins were made at the Ashmolean Museum through the kind intervention of Dr. D. M. Metcalf.

[2] *Abbreviations*: Bertelè: T. Bertelè, 'Monete bizantine inedite o rare', in *ZfN* 1926, 1–36; Goodacre: H. Goodacre, *A Handbook of the Coinage of the Byzantine Empire*, 2nd edn., 1957 (quotations from this work are made by kind permission of the publishers); Mattingly: H. Mattingly, 'A Find of Thirteenth-century Coins at Arta in Epirus', in *NC* 1923, 31–46; Ratto: R. Ratto, *Monnaies byzantines* (sale-catalogue, Lugano, 1930); Sabatier: J. Sabatier, *Description générale des monnaies byzantines*, 1862. I have not been able to consult A. M. de Guadan in *Estudos Castelo-Branco*, 1962, 7–24, or T. Bertelè in *Polychronion*, 1966.

arms of the cross are terminated by one dot and a reversed V within another reversed V. In the centre of this empty cross is a small, neat cross with terminal spheres. A four-dot decoration is visible in the outer field, and was doubtless repeated four times. One-line border.

Rev. Half-length figure of emperor. Trace of moustache and beard. The emperor's figure is very poorly struck. His crown has a neat frame outlining one curved row of tightly set jewels. The pendants hang from the inner corners of the frame and terminate with one pearl. The right arm is akimbo, and the (rather wide-headed) labarum passes, I believe, behind it. A globus-cross is held in the left hand. At the neck there is an overlapping scarf. Jewelled squares seem to make up the rest of the half-length figure. Incomplete clockwise legend, ΥΛΔЄCΠΟΤΙC Ṁ One-line border. 1·31 gm. **[Pl. XI. 2.]**

Attribution. Manuel Angelus Comnenus Ducas, who, during the captivity of his brother Theodore (1230–7), occupied the throne of Thessalonica. The following parallels may be noted:

(i) Eight coins, Class XIV of the Arta find, the obverse type described as being a 'Large cross voided with floreate ends to limbs; small cross in centre', were given by Mattingly to Theodore of Thessalonica. As I recall, the cross is very hard to see, but not one of them has the outline turning into Ps. Their double parallel side-lines turn outwards and meet each other as small hooks.

(ii) Goodacre 303, 6: the same coins from the Arta hoard as described above. Goodacre suggests Epirus as a possible source for such an oddity.

(iii) In Mattingly's Class XXII of the Arta hoard there are seven coins given to the mint of Thessalonica on which the emperor holds a very large, square-ended cross. Only one of the seven has this cross drawn as voided.

Type III

3. *Obv.* Half-length figure of winged archangel Michael wearing corselet. Hair in dots, nimbus a solid line. Double striking obscures the pattern of the corselet, but it may be composed of three panels, jewelled vertically. We see on the saint's right an armoured sleeve

(no under-tunic), and at his neck, half the gathering of the short military cloak. His right hand supports the three-branched nartex[1] staff, which passes before the sleeve. He is probably in his role as Guardian of the Church. Legend obscure. Traces of one-line border.

Rev. There are two strikings of a standing emperor but only one of a saint. Michael VIII wears twelve-jewelled drooping crown, moustache, divided beard which does not extend below his chin, eight-jewelled collar. Chest-ornament: four jewelled squares; loros-element of five jewels in turtle-back design; skirt panel (incomplete) shows four jewels in central panel. The over type of the emperor does not hold the long labarum, but St. Demetrius (?), who has no nimbus, does. There may be a ΔΩ monogram or the definite article Ο above the saint's head, inside a thin one-line border. This standing saint has a short military cape, cuiras, and short leather skirt. He is meant to be full-length. His left arm is at his side, apparently resting on a shield. The left hand of the undertype of the emperor holds the staff of the labarum at the level of the saint's left hand. Legend to coin's right, probably ΠΑΛ of Palaeologus. This coin has lost two large chips; from one of the missing areas an ΝΑ monogram was noted earlier. Goodacre's no. 17 of Michael VIII has in that position an ΝΑ monogram. 1·95 gm. Originally heavier. **[Pl. XI. 3.]**

Attribution. Michael VIII (1258–82). Goodacre 323, 18. Except for plural striking the figures are very similar. The present coin would be smaller than Goodacre 18 and would show the wide labarum-head between the figures. The saint's hold on it is high (near the pendant of the first-struck emperor's crown). A difficulty is that the 'first' pendant is of three large vertically strung pearls, whereas the second-struck emperor, with the same garments as Goodacre 18, wears a crown with pendant of the delicate and complicated 'bird's-foot' type. In his right hand Michael VIII holds a staff which passes before his arm, and terminates in a cross of unusual delicacy, not in the style of the central labarum. The saint, who if beardless would probably be Demetrius, does not seem to be overstruck, but poorly struck

[1] Goodacre 335, 6 (Andronicus III); triple-headed sceptre in left hand. See Type IV of this paper. The three-branched nartex is also held by St. Michael on the reverse of the anonymous copper scyphates given in *BMC Van* to the reigns of John and Demetrius in Thessalonica; the obverse has bust of youthful Christ. Good specimens show the figures elegantly drawn with dots, and at full length. The style is not at all comparable to this obverse of Michael VIII. There is the suggestion of a sphere at the left shoulder of the Bergama coin, as also in Goodacre's illustration. St. Michael on the anonymous coin holds a globus cruciger in his left hand.

or worn. Can the fresher figure of the emperor holding the cross be a case of re-cutting of the die?[1] (See Type IV, below.)

Type IV (*Unpublished*)

4. *Obv.* Youthful bust of Christ, with right hand before body in benediction. IC / Δ [XC]. One-line border.

Rev. Two strikings. Head of first curiously abbreviated. Second (re-cut?) shows one half of clearly bearded face and moustache. Crown with pendants of two strung pearls. Loros overlaps at neck. Standing emperor, cloak over shoulders falling to ground behind, with large jewels at sides. Loros element with five jewels in turtle-back design. Five-jewelled labarum with a sixth jewel at top, and two ornaments on shaft, which crosses right arm to right hand. Left hand supports globus set with patriarchal cross. Skirt has five-jewelled simple panel. X / M / C / C to left, - - - to right. At top of coin, segment of two-line border. 2·22 gm. **[Pl. XI. 4.]**

5. *Obv.* Double struck. Same bust. Nimbus of fine dots; cross decorated (where one arm survives) with one dot. I]C / A to left, - - - to right.

Rev. Double-struck in the ordinary way. Border of two lines in each striking. Same portrait and costume as no. 4. X / M to left, O / Π / Λ / O to right 1·87 gm. **[Pl. XI. 5.]**

Attribution. Michael VIII (1258–82). These two coins do not show a beard below the chin, as I believe Ratto 2220–1 do. But the latter are stylistically very close to this pair, which may have been struck before them—perhaps in Nicaea, since the robe of Michael VIII here is so similar to the one that John III displays on Ratto 2287. Note (?) mint-marks Δ, A.

Type V

6. *Obv.* Half-length figure of St. Theodore in jewelled, diamond-patterned corselet. Dotted nimbus, curly hair. Very sharp angle to right arm; right hand holds spear across breast at same angle as diamond design. Oval shield with dotted border, in left hand at waist height. Traces of leather military skirt, which, in reversed

[1] A. R. Bellinger, 'Silver Coins of Nicaea' in *ANS Centennial Volume*, 1958, pl. VIII. 8–9.

striking, may have been the source of three parallel lines which meet the nimbus (they are not a wing). Traces of beard (?), and one-line border. Double struck. Ⓐ / -- / Δ Ω / OC

Rev. Standing figures of emperor and Christ. Double striking makes the bearded and moustached emperor taller than Christ, and confuses an XC (?) between them with the Saviour's raised hand (Theostaphes). Standing left, the emperor wears loros and tunic. The downward-curving crown has pendants strung with three pearls. Chest ornament, ⁘; loros element, five jewels set in turtle-back segments; skirt has panel of six large jewels in one strip, and borders and hem of closely set jewels. Collar of eight jewels. Right hand holds staff of labarum (?) crossing in front of upper arm. Left hand may have akakia. Bearded Christ crowns the emperor with his right hand, while the left cradles five-jewelled Book. Partial legend of partial letters gives: ΔЄCΠOT OΛΛΓ One-line border. 2·14 gm. **[Pl. XI. 6.]**

Attribution. Michael VIII (1258–82). See the type briefly described in Goodacre 323, 21.

Type VI

7. *Obv.* Mother of God standing, facing hands raised in supplication towards her right and flanked by B B . MP Θ[V indistinct.

Rev. Michael VIII enthroned, wearing crown, loros, and tunics, and holding in right hand labarum which passes before that arm. Left hand holds globus with patriarchal cross. Portrait double-struck but shows divided beard and faint moustache. Neckline jewels obscured, but one elegant pendant of the crown survives, its three elements anchored directly after the last jewel of the crown. Chest ornament: ⁘ in one frame; loros element: ⁝⁝, each jewel in its square. Central skirt panel: one X below another, framing seven jewels. The skirt of the outer tunic is represented by the spiral lines which go from knee to ground. The throne might seem to have a low back, if one does not grasp that the emperor's right arm parallels the two spiral lines which show the front and back of the flat seat of the throne. The loros, folded thin, falls unfortunately into line with the Byzantine perspective of the back leg of the throne, which is longer and larger than the front one. On no. 8 below, the

loros-end is drawn closer to the body. ΔЄC / ΠT / ΓΛ O / Π A. One-line border. 1·75 gm. **[Pl. XI. 7.]**

8. *Obv.* The Mother of God, standing, as above. Weak striking.

Rev. Michael VIII enthroned. Double struck; same beard, but no moustache shows. The same figure, except that the pendants are simple. Chest ornament: four jewels in four squares. P above cross IA / ΛA / OΓ. 2·31 gm. **[Pl. XI. 8.]**

Attribution. Michael VIII (1258–82). Goodacre 322, 12 (from Bertelè); Bertelè, pl. ii. 49.

Type VII

9. *Obv.* Mother of God enthroned, struck perhaps over bust of Christ (remains of nimbus with rays). To her right, back of throne shows top of X decoration. She holds medallion. MP missing; ΘV faint.

Rev. To right, seated Christ crowns kneeling emperor with right hand. Left hand in lap holds dumb-bell-shaped akakia. St. Michael behind emperor, who is bearded and possibly moustached. Crown and pendants weak. His arms and hands are extended in supplication towards the Saviour. He wears eight-jewelled collar. On chest, four jewels divided by cruciform design; two are obscured by right hand. Skirt shows three squares with large jewel in each; on its left, jewelled strip. **[Pl. XI. 9.]** Trace of one-line border. 2·08 gm. Poor condition.

10. *Obv.* Mother of God holding medallion of Christ Child, seated on throne with high jewelled back of two dotted X panels. Dotted nimbus coincides with one-line border. MHP (ligate) ΘV.

Rev. Pendant of crown, three strung pearls plus two laterally, at end. Upper half of akakia suggests cross on breast of Christ. Border indistinct, crossed by angel's wand. Otherwise same design as above, with bearded, moustached Michael VIII kneeling before Christ, who crowns him. OA above St. Michael's wing. Trace of X / M / -ЄC?/. 1·76 gm. Poor condition. **[Pl. XII. 10.]**

Attribution. Michael VIII (1258–82). Bertelè, pl. ii. 42 (three coins, weighing 1·69, 2·80, 2·91 gm); Sardis excavations 987 (attributed to Michael VIII, wt. 2·85 gm); Goodacre 322, 15 (from Bertelè).

Type VIII

11. *Obv.* Double-struck; winged St. Michael with right arm bent before body to hold spear (not visible) over shoulder. Left arm extended downwards so that hand rests on shield. Wears short military skirt (which the archangel Gabriel, who had no military characteristics in Christian art, never does). Χ / Λ. One-line border.

Rev. Michael VIII standing, with divided beard and cloak and moustache. Pendant, a string of three pearls. Chest area shows loros. Loros element, faint, at midriff, shows five segments of turtle-back design each bearing one jewel. Skirt, incomplete, starts with Χ pattern. Left hand holds exaggerated volumen form. Extending behind the right elbow and hand is an incomplete staff; and here is seen, possibly, the flowing sleeve of the outer tunic. Ο / ΠΑ / Λ / Ο / Γ. One-line border. Double-striking on right. 2·70 gm. **[Pl. XII. 11.]**

Attribution. Michael VIII (1258–82). Provincial style? *BMC Byz.* pl. lxxiv. 8; Ratto 2220.

Type IX (*Unpublished*)

12. *Obv.* Nimbate seraph. Double struck; upper two wings have only beginnings; lower four wings clearer.

Rev. Emperor, poorly centred, standing ¾-length, with crown, mantle, loros (?), tunics. His right hand holds labarum, which crosses before the right arm. Left hand holds long patriarchal cross, with ornament mid-staff. Divided beard, faint moustache, drooping crown. Pendants faint, but three-lobed. This coin is probably an overstrike, for three heavy blurred jewelled borders, outlining the chest area, suggest a mantle, whereas the chest decoration (a central panel of a row of close-set jewels) would seem to belong to the loros of the period, with an opening for the head. Lower robing faint, but suggests an Χ set with four jewels as loros element. -/ΜΟ?/-ΟΠ/ΑΤ/Ο/Γ One-line border. 2·26 gm.

Attribution. Michael VIII (1258–82).

Type X (*Unpublished*)

13–17. *Obv.* St. Nicholas appears compositely from the five coins to have the tonsure, pointed brow, round beard of dots, moustache, nimbus. He probably wears a paenula (chasuble) and archbishop's

omophorion (scarf) with two crosses at the neck, and two near the bottom of the robe. His left arm holds five-jewelled Book. The right hand is arranged in benediction before the body. The figure is meant to be full-length, though the flans are small. The dotted border would come to touch the hem of the tunic. Ⓐ NI / KO / ΛA / M NI / KO / ΛAS / Δ (See diagram)

Obv. 13	Ⓐ NI/- - - A/H	N-/KO/M/AS
14	Ⓐ NI/PO/ A	- -/KO/- -/
15	Ⓐ NI/-O/ H	Λ-/F/OS/A
16	Ⓐ NI/- - - -	NI/KO/MS/Δ
17	Λ H/-O/- -	- -/-O/- - -/Δ
Rev. 13	A Δ	- - - - -
14	PI/NE/H/O/C	- - - - -
15	A / P / X	XP/ΔE/CΓ/OT/H
16	ΘA / N/I/K/R	X / IΓ/Π /H
17	- - - - -	XN - - - -

Diagram: inscriptions of nos. 13–17.

Rev. This beautifully conceived design has the two emperors united by the outstretched hands of the bust of Christ above them. The bust is neatly limited by the edge of Christ's short colobion, a rayed nimbus, and IC XC on either side. The two emperors stand full-length, though the flans never quite give us the hem of the outer tunics which are drawn with two parallel lines of jewels. The costumes are essentially mirror images. The loros is, to accommodate the

thinness of the figures, reduced to very narrow proportions; in all of its parts a single line of jewels with a one-line border. The pendants of the jewelled crown have consistently two pearls. The collars show seven jewels. The chest decoration varies from two to four jewels; the skirt from two to seven depending on the scale of the drawing, and the centring of the flan. The loros element is reduced to a mere diagonal line of about ten jewels, and the end of the loros falls from the arm in various lengths, even suggesting a long robe. Between the emperors a patriarchal cross rises from a triangular base. The bearded and moustached father grasps it with his right hand. The son Andronicus II, who has neither moustache nor beard, has his hand placed lower down. Each emperor holds, towards the borders of the coin, the three-branched nartex.[1] (OA-P-NIKOS XM ΔECΠOTH) 2·64, 1·88, 2·28, 1·82, 1·57 gm in that order. **[Pl. XII. 13–17.]**

Attribution. Michael VIII with Andronicus II (1272–82). In this series there is some confusion about the placement of the senior of the two emperors. However, if one of them has his hand higher than the other on a shaft that they both hold, he will be accepted as the senior. In this group of five coins, then, the beardless emperor on the coin's left, next to the legend 'Andronicus', who holds the shaft of the central cross lower down, will be the junior emperor, in this case Andronicus II. The bearded emperor on the right, whose hand is higher on the long cross and whose legend is 'XM Despot', will be his father, the senior emperor Michael VIII. If this is accepted, one need not wonder if this coin type is the same as Goodacre 330, 31–2, which are given to Andronicus II and his son Michael IX. These coins have no bust of Christ above the imperial figures; and St. Nicholas, 'seated' or 'facing', does not have a redoubled legend. Those coins (not illustrated) were Bertelè's (cf. also Bertelè pl. iii. 65).

Type XI

18. *Obv.* St. Theodore, in military dress, nimbate, bearded, lance in right hand held across body. In left hand, small round shield with eight-rayed star. One-line border. Ⓐ / ΘЄ monogram; O / Δ / ω weak.

[1] This interesting form of sceptre first occurs in some of the gold and silver of Constantine IX. Sabatier calls it a 'nartex', and Leclerq, *Dictionnaire d'archéologie chrétienne* s.v., defines it as the sceptre of the Byzantine emperors, synonymous with 'ferula' or 'verge'. The ferula plant branches somewhat like an umbrella, and is cut still today by shepherds for many uses. St. Michael often holds a nartex.

Rev. St. Michael with nimbus, tresses and wings done in tiny dots. (Poor striking of the archangel's right wing has produced a false X in it.) Behind would be a short cloak, the fastening of which we see before the neck, neatly terminating the bust, which is between and above the emperors. The saint's large sheathed sword divided the coin. The emperor on the right side with divided beard grasps the sword just below its hilt. The other emperor, with no beard showing, holds it lower down, barely visible. The crowns, which do not 'droop', have pendants which terminate with a small jewel touching a larger. Both emperors seem to be clothed identically: fourteen(?)-jewel collar; chest panel, one X above another with parallel panels. Figures terminate at $\frac{3}{4}$-length, showing traces of four- or five-jewelled loros element. Towards the borders each emperor holds a labarum. Shaft of right labarum shows two ornaments below and two above the bearded emperor's left arm, behind which it passes. The junior emperor holds labarum in the same manner, but there are no ornaments mid shaft above shoulder-level. Border of two well-cut lines. 2·64 gm. The only billon coin in the group. **[Pl. XI. 18.]**

Attribution. Michael VIII with Andronicus II (1272–82). Sabatier, pl. lxii, 3, gives no legend for his example of this design, described on his p. 259 as billon, but nevertheless attributes it to Andronicus II with Andronicus III (1325–8). The present coin also has only traces of the right-hand legend remaining. If one does not accept Sabatier's attribution, which would involve the type being a quarter century later than the rest of the hoard, two possibilities remain. These are that it should be of Michael VIII with Andronicus II (1272–82) or of Andronicus II with Michael IX (1294–1320). In view of the compact age-structure of the rest of the hoard the former seems more likely.

I should like in conclusion to express my thanks to the Coin Rooms of the British Museum, the Ashmolean Museum, and the Fitzwilliam Museum for the facilities and assistance afforded to me.

APPENDIX

Since this article was sent to press it has come to my notice that a further specimen of Type II above has recently been published by Mme M. Caramessini Oeconomides ('Contribution à l'étude de la

numismatique byzantine du XIII^e siècle', *RN* 1967, 262, no. 80). The new piece, from the excavations at Lake Prespa, reads: [M]IXAHA ΔЄCΠOTICO and can therefore belong only to an emperor named Michael. Mme Oeconomides attributes the issue to Michael VIII and considers the mint to be Thessalonica.

BILLON COINAGE OF THE CRUSADING PRINCIPALITY OF ANTIOCH

By D. M. METCALF

(SEE PLATES XIII–XV)

ANTIOCH was in the hands of the Crusaders from 1098 until 1268. In that period of 170 years it retained, with its port of Seleucia Pieria (renamed Port St. Simeon) and its suburb of Daphne, some of the importance which it had held for centuries as one of the world's great cities—a large urban complex drawing its prosperity from the international trade of the Mediterranean. It had ranked with Rome, Constantinople, and Alexandria in the early Middle Ages; by the twelfth century, new centres of power such as Baghdad and Palermo had arisen, and initiatives were passing to the north Italian cities. Antioch was still an international centre, its position being guaranteed by the export of luxury commodities, but it had slipped into the second rank. The chronicles of the time are coloured largely by sieges and skirmishings. These were the year-by-year expression of Antioch's strategic situation as a fortress defending the Christian foothold in the Levant against threats and pressures from Aleppo and other cities of the hinterland. Military requirements doubtless stimulated the monetary sector of the economy, but trade was certainly very important. The historical record says hardly anything about the commerce which was the steady accompaniment of all the fighting. William of Tyre gives us a welcome glimpse in the course of his description of events in 1098. The countryside, even between Antioch and the sea, was not safe, and the journey from the port to the city was made under armed escort. To hamper even that limited freedom of movement, the Muslim commander Kerbogha sent a force to ravage the shore: they 'burned some of the ships, killed the greater part of the crews, who were caught entirely off their guard, and put the rest to flight. The news of this disaster spread abroad. It greatly alarmed the merchants who had been coming thither on trading voyages from Cyprus, Rhodes, and other islands, as well as from Cilicia, Isauria, Pamphylia, and other maritime countries. . . . As

a result, trading in commodities ceased entirely.'[1] As conditions became more settled, commercial opportunities were no doubt seized swiftly.

The currency of Antioch throughout the crusading period consisted of gold, silver, and copper—Byzantine solidi,[2] Arabic dinars, Crusader bezants,[3] French and Italian billon,[4] English sterlings, and Seljūq copper[5] were among the 'foreign' coinages that were used. From the point of view of the autonomous issues, the series may be divided into two phases. In the first, the rulers struck thick copper coins in continuation of the Byzantine tradition; in the second they issued billon deniers of the French type, initially showing a bare head, and then later a bust wearing a helmet and chain mail. It is the local billon series which is discussed here.

Fig. 1.

1. *Billon deniers with bare head facing right.* The earliest Antiochene deniers in the French style have until recently been very scarce. Those published in the 1860s and 1870s by Melchior de Vogüé, Lambros, and Schlumberger, and attributed by them to Raymond de Poitiers (1136–49) and Bohemond III (from 1149 under the regency of Baudouin III, Renaud de Chatillon, etc.; prince, 1163–1201) amounted to only about half a dozen specimens. The recent discovery of a substantial number of coins of Bohemond III of the

[1] E. A. Babcock and A. C. Krey, *A History of Deeds done beyond the Sea. By William, Archbishop of Tyre*, New York, 1943, 2 vols., at book vi, 9. For a description of Antioch, see S. Runciman, 'The First Crusade: Antioch to Ascalon', in K. M. Setton (ed.), *A History of the Crusades* i (1955), 308.

[2] See C. Morrisson, 'Le Michaèlaton et les noms de monnaies à la fin du XI^e siècle', *Travaux et Mémoires* (Centre de Recherche d'Histoire et Civilisation Byzantines), 1968, 369–74.

[3] See J. Yvon, 'Besants sarracénats du roi de Jérusalem', *BSFN* 1961, 81–2; A. S. Ehrenkreutz, 'Arabic *dīnārs* struck by the Crusaders, a case of ignorance or of economic subversion', *Journal of Economic and Social History of the Orient*, 1964, 167–82; J. Yvon, 'Monnaies et sceaux de l'Orient latin', *RN* 1966, 89–107; G. C. Miles, 'Some Hoards of Crusader Bezants', *MN* 1967, 189–203.

[4] D. B. Waagé, *Antioch-on-the-Orontes*, iv, pt. 2, Princeton, 1952; S. H. Weber, 'The Coins', in *Antioch-on-the-Orontes* i (1934), 80.

[5] G. C. Miles, in *Antioch-on-the-Orontes* iv, pt. i, 112 and 119–21.

'bare head' type offers a welcome opportunity to assess the conditions of their issue more fully. A hoard reported to have been found near Aleppo in the late summer of 1964 yielded 154 coins to the hands of Mr. Bruce B. Braun, who obligingly communicated a summary of its composition to the writer. There were ten of the 'bare head' coins, along with seventy-nine of the 'helmet' coins.[1] Nor was this the only recent find. A hoard discovered in 1966 at Latakia, and containing seventy-six of the 'bare head' coins along with various other types, was rescued for the world of learning through the efforts of Dr. P. Bedoukian.[2] Early in 1968 Mr. Charles Wolfe generously donated, for neutron activation studies by Professor Gordus and the writer, a small group of Antiochene deniers, consisting of two of the 'bare head' type and five 'helmet' coins.[3] Taking into consideration the previous scarcity of the 'bare head' type, and the early varieties of 'helmet' coins represented, it seems likely that they originated in one or other of the hoards. Fourthly, Mr. Carl Subak very kindly loaned for study a parcel of 128 'bare head' coins, obtained by him in Europe in 1968. It is this last group which is catalogued here. All but one of the coins seemed from their surface appearance to be from a single source: they were clean and bright, with a slight whitish incrustation on some of them. The exception is the only coin of Raymond in the parcel. Although not fully struck up, they were mainly in very fresh condition. There is no evidence at all to associate the large parcel with the others, and no record of provenance attaches to it. Nevertheless, the large number of coins is in itself sufficient to make their close study worth while for monetary history, from the aspects of metrology, die-duplication, and the relative proportions of different varieties.

Among the coins of Bohemond there are three types. Their identifying features, and the numbers in the parcel, are:

1. With the portrait modelled in relief. The forms of the letters A, O, and V are as shown in the diagram below. The letter-forms M and N, and also H and A, are variable. M is sometimes shown as ⋀, and N sometimes as H or ⋂. H and A are occasionally double-barred. 16

[1] The coins were offered for sale in the periodical priced lists of Ancient Arts (Buffalo, N.Y.).

[2] Dr. Bedoukian has very kindly allowed me to study the entire hoard by means of foil impressions, since the text of this article was completed. I hope to discuss it, along with other north Syrian finds of similar composition, in *HBN* 1969.

[3] The results of the neutron activation analyses are to be published jointly elsewhere.

2. With the portrait in a linear style.

(*a*) 'Early' lettering (see **Fig. 2**). Sometimes with a dot or annulet in the first quarter of the reverse, occasionally in some other quarter. 27

(*b*) 'Late' lettering (see **Fig. 2**). Usually with a dot or annulet in the first quarter, or occasionally in the second, third, or fourth quarter. 84

127

The reasons for placing the three types in the indicated sequence are (i) the first shows stylistic affinities with the coins of Raymond; it makes up the smallest group in the parcel, and includes relatively few die-links; (ii) the second includes relatively more coins without a dot

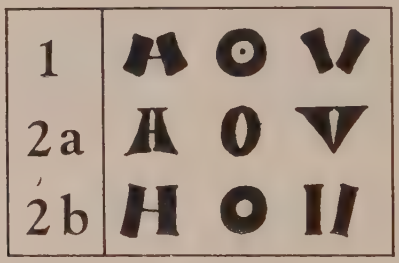


FIG. 2.

or annulet than the third (45 per cent ~ 37 per cent) and relatively fewer coins on which the dot or annulet is in the second, third, or fourth quarter (7 per cent ~ 23 per cent); (iii) the third type is by far the most plentiful; (iv) it includes coins in virtually uncirculated condition. It should be pointed out that there is only one specimen of variety 2*a* with an annulet in other than the first quarter.[1] The more varied range of marks may have had its origin late in the period of variety 2*a* and may not properly belong with it. When a dot or some other symbol is placed in one particular quarter of the reverse design, in the French Feudal series—or when, for example, a crescent is placed in the second quarter on the reverse of the Antiochene 'helmet' deniers—its position is very consistently maintained, if not invariable.[2]

[1] No. 36 in the catalogue. One of the coins donated by Mr. Wolfe is from the same dies.

[2] A 'helmet' coin published by Lambros has the crescent in the first quarter. It appears to be of Allen's type 1. See *Mélanges de Num.* 1874–5, 365, no. 13, and the drawing reproduced in **Fig. 7.**

The dots and annulets in the second, third, and fourth quarters of the Antiochene 'bare head' coins cannot, therefore, be dismissed as resulting from errors or carelessness on the part of the die-cutters. Their significance is not known. The relative proportions of coins with no symbol, with dots, and with annulets (in any position) are:

	Plain	*Dot*	*Annulet*
Type 2*a*	12	8	7
Type 2*b*	31	22	31

The figures are sufficiently close to each other to suggest a fairly equal tripartite division, such as might be the case if there were three sections in the mint. Although this is merely a conjecture, it points to the interest which die-links between different reverses hold. There

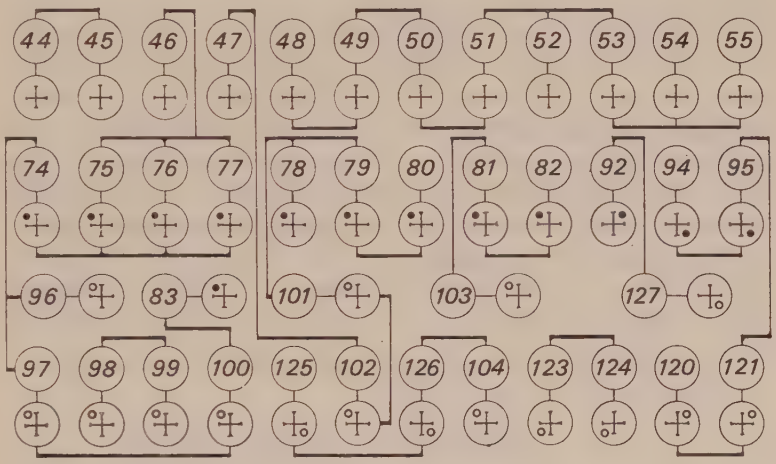


FIG. 3.

are chains of die-links which show clearly enough that the three kinds of reverse were being struck concurrently. The information has been presented in diagrammatic form for type 2*b*, which is the more complicated (see Fig. 3); for 2*a* it can be reconstructed from the catalogue. In the context of the complete pattern of die-links, it can be seen that, in type 2*b*, a reverse is approximately as likely to be linked with one of a different kind (plain, dot, annulet) as with one of the same kind; but since the available total of the former category is greater, this means that links tend to be between coins of the same

kind. The tendency is more pronounced in type 2*a*. Cross-links occur between each of the kinds, but there seem to be significantly more dot-to-annulet links (5) than plain-to-dot (1) or plain-to-annulet (1). There are three pairs (and a fourth in type 2*a*) linking coins with the symbol in different quarters; the number seems to be relatively larger than one might have expected, and is perhaps consonant with a higher rate of die-duplication among the coins with a symbol in the second, third, or fourth quarter. Some of the cross-links have been selected to illustrate the style of type 2*b*, namely nos. 74 with 97, 92 with 127, and 95 with 121 (see **Pls. XIII–XIV**).

The weights of the coins vary a good deal, and the differences between die-linked specimens show that such variation was within the working standards of the mint. The mean averages for the types are:

1	0·83 gm
2*a*	0·81 gm
2*b*	0·83 gm (omitting 2 broken coins)

The means, and also the distribution of the individual weights around the means, hint at differences between the three kinds of reverse—the coins with annulets are a little lighter and more spread than the plain kind, and those with a dot include a higher proportion of heavy flans—noticeably among the specimens where the dot is in the second, third, or fourth quarter. Another hundred or so specimens should show whether these differences are real ones, or merely the result of random variation.

2*a* and *b*:	plain	0·81 gm (41)	
	dot	0·89 gm (29)	1st quarter 0·86 gm (24)
			2nd 3rd, 4th quarter 1·06 gm (5)
	annulet	0·79 gm (39)	

The extent of die-duplication among the 127 coins in the parcel gives an idea of the original volume of the 'bare head' coinage. The numbers of different obverse and reverse dies are:

Variety	*Specimens*	*Obv. dies*	*Rev. dies*
1	16	15	14
2*a*	27	17	22
2*b*	84	67	70
	127	99	106

Lyon's method of estimation of the number of dies[1] gives, from the reverse figures, a range of 245 to 530 dies, and, from the obverse figures, a range of 185 to 345 dies. These ranges would be consistent with the use of obverse and reverse dies in a ratio of, for example, either 1:1 or 1:2; the pattern of die-linkage (many links but hardly any duplicates) and the fact that the coins were not die-adjusted (nos. 75–7 are each differently adjusted) suggest that there was no rigid rule. If one accepts a round figure of 10,000 as the average output of a reverse die, one's estimate will be that the 'bare head' coinage originally totalled $2\frac{1}{2}$ to 5 million deniers. This is likely to be an underestimate, as the hoard shows clear signs of 'clustering'—three, four, or even five coins from the same die, and long chains of linked coins, alongside numerous singletons. Other students may construe the statistical evidence according to whatever system they prefer: meanwhile, every effort has been made to put the facts on record accurately and fully. The earliest coins, type 1, have a particular interest for monetary history. They show no significant difference from the rest, but the figures are small, and the margins of uncertainty correspondingly greater. It seemed advisable, if a limited selection had to be made, to illustrate all the coins of type 1, in the hope that further evidence might eventually come to light, permitting a more precise idea about the scale on which the autonomous billon coinage was launched.

CATALOGUE

Type 1

1–16. *Obv.* +BOAMVNDVS, bare head right.

(16) *Rev.* +ANTIOCHIA, cross.

No. 1 has a 'man-in-the-moon' head like that on the coin of Raymond of Poitiers, Münzen und Medaillen 30/785. It links the beginning of the series with that and other experimental dies with the name of Raymond.

There are variations in the letter-forms: M and N are double-barred, in opposite directions (nos. 2–6); the A may be double-barred (no. 6), and so may the H on the reverse (no. 7). There are 15 obverses and 14 reverses. Die-linkage: nos. 4 and 5 are from

[1] C. S. S. Lyon, 'The Estimation of the Number of Dies Employed in a Coinage' *Numismatic Circular*, 1965, 180–1.

the same obverse, and nos. 4 and 6 are from the same reverse; nos. 8 and 9 are from the same reverse. Weights (in the order in which the coins are numbered on the plate): 0·79, 0·78, 1·07, 0·63, 0·79, 0·89, 0·83, 0·76, 0·96, 0·75, 1·00, 0·77, 0·88, 0·75, 0·83, 0·86 gm. (Mean, 0·83 gm.)

Type 2*a*

17–28. (12) Plain reverses. There are 5 obverse and 8 reverse dies. Die-linkage; O.1, nos. 17–21, O.2, 22–4, O.3, 25–6. R.1, 17–19, R.2, 20–1, R. 3, 22–3. No cross-links through other type 2*a* obverses. Weights: 0·77, 0·97, 0·83, 0·73, 0·85, 0·79, 0·91, 0·90, 0·88, 0·48, 0·92, 0·83 gm.

29–35. (7) Dot in first quarter. 6 obverses, 6 reverses. Nos. 29 and 30 from the same dies. Cross-linkage: no. 31 with no. 36. Weights: 0·90, 0·59, 0·90, 0·82, 0·78, 0·76, 0·76 gm.

36. Dot in second quarter. Same obverse as no. 31. 1·05 gm.

37–43. (7) Annulet in first quarter. 6 obverses, 7 reverses. Nos. 37–8 are from the same obverse. Weights: 0·83, 1·06, 0·85, 0·80, 0·75, 0·60, 0·48 gm.

Type 2*b*

44–73. (30) Plain reverses. 26 obverse and 26 reverse dies. Die-linkage: see **Fig. 3.** Weights (see numbering on Fig 3): 0·73, 0·94, 0·83, 0·89, 0·78, 0·70, 0·93, 0·73, 0·81, 0·99, 0·87, 0·71, 1·08, 1·05, 0·91, 0·89, 0·86, 0·83, 0·81, 0·81, 0·79, 0·74, 0·73, 0·72, 0·72, 0·71, 0·70, 0·67, 0·61, 0·35 gm (broken).

74–91. (18) Dot in first quarter. 15 obverse, 13 reverse dies. Die-linkage: see **Fig. 3.** Weights: 1·16, 1·06, 0·84, 0·62 (broken), 0·80, 0·91, 0·94, 0·94, 1·06, 0·58, 1·06, 0·95, 0·88, 0·85, 0·82, 0·78, 0·70, 0·68 gm.

92. Dot in second quarter. Same obverse as no. 127. 1·11 gm.

93. Dot in third quarter. 0·97 gm.

94–5. Dot in fourth quarter. 2 obverse dies, one reverse die. See **Fig. 3.** 1·15, 1·04 gm.

96–119. (24) Annulet in first quarter. 22 obverse and 22 reverse dies. Die-linkage: see **Fig. 3.** Weights: 0·95, 0·75, 0·58, 0·90, 0·85, 0·66, 0·72, 0·97, 0·92, 1·01, 0·99, 0·97, 0·90, 0·86, 0·86, 0·85, 0·82, 0·81, 0·77, 0·73, 0·71, 0·69, 0·56, 0·42 gm.

120–2. (3) Annulet in second quarter. 2 obverse dies, one reverse die. See **Fig. 3.** Weights: 0·90, 0·86, 0·66 gm.

123–4. Annulet in third quarter. One obverse, 2 reverse dies. 0·73, 0·62 gm.

125–7. Annulet in fourth quarter. 3 obverse and 2 reverse dies.
(3) See **Fig. 3**. Weights: 0·84, 0·77, 0·77 gm.

FIG. 4.

In the Supplement to his *Numismatique de l'Orient latin*, published in 1882, Schlumberger described a 'bare head' coin of Bohemond, which he had bought in the bazaar at Istanbul (see **Fig. 1**), and noted that only two specimens of the type had previously been recorded—one was in Paris, and one was in the Lambros collection. It may seem surprising that an issue of 2½–5 million or more coins from the twelfth century should until then have had such a low survival-rate. The scale on which the equally scarce deniers of Raymond of Poitiers were struck is a matter for conjecture. If they had been numerous, one would have expected them to have remained in circulation and to have made up a proportion of the parcel of 127 coins described here—unless their alloy were appreciably better, when efforts would presumably have been made to withdraw them. The few that have been published, when set alongside the coins of Bohemond III, seem to be 'experimental' in character. They are quite varied in style, and particularly in their letter-forms, but they all read ANTIOCHIE not ANTIOCHIA:

1. *Obv.* RAIMV NDVS. Portrait with long neck, breaking the legend. *Rev.* ANTIOCHIE. Cross. De Vogüé colln. *Mélanges de Num.* ii (1877), 180. Billon.
2. Similar. Lambros colln. *Mélanges de Num.* i (1874–5), 360.
3. *Obv.* Portrait extremely similar to no. 1; lettering intermediate between nos. 1 and 2. *Rev.* Very similar to no. 2. Münzen und Medaillen 30/785. 0·90 gm. Silver. (Not shown in **Fig. 4**.)

4. Similar, with shorter neck. Lambros colln. *Mélanges de Num.* i, 360. Billon.
5. Similar. Schlumberger colln. *Mélanges de Num.* i, 268. Reproduced in *Num. de l'Orient Latin*, pl. ii. 17, where the drawing does not show the unusual C in ANTIOCHIE remarked on in the text. 0·75 gm. Almost pure silver.

2. *Chronology of the billon coinages.* Raymond of Poitiers became prince of Antioch in 1136 by his marriage with Constance, who was the youthful heiress and only daughter of Bohemond II (she was born in 1127). After Raymond's death in 1149, the succession passed to their elder son, Bohemond III, who was, of course, still a child. Baudouin III (king of Jerusalem) exercised the regency until 1153, when Constance was remarried, to Renaud de Chatillon. Bohemond was not installed as ruler until 1163. His 'bare head' deniers were, however, undoubtedly issued directly after those of Raymond, for which one may suggest the date 1147–9.

The Samos hoard, which contained a 'helmet' denier of Bohemond of Allen's type 3 (see below), was concealed probably not later than 1185; perhaps in 1182.[1] If types 1, 2, and 3 of the 'helmet' coinage, as well as all the 'bare head' coins in the name of Bohemond, have to be fitted into the period beginning 1149, the most likely occasion for the introduction of the 'helmet' type would seem to be the installation of Bohemond in 1163. Since there are three quite distinct styles of lettering in the 'bare head' coinage, it would seem impossible to fit them, and also many of the 'helmet' coins, into the shorter period between 1163 and the date of deposit of the Samos hoard.

3. *Billon deniers with helmeted head facing left.* The 'helmet' design remained in use for a hundred years as a 'type immobilisé'. The well-tried methods of studying such coinages in the English series—subdivision into varieties by reference to inscriptional and other differences, and testing the scheme against hoards with various dates of deposit—is especially appropriate to the 'helmet' coins. D. F. Allen's classification, published in 1937, was the first to attempt a detailed arrangement of them according to scientific principles.[2] As will be seen, it stands up very well to the test of new evidence. Allen identifies nine main types, in two sequences, numbered 1 to 6 and 1* to 3*, and in addition there are coins of Raymond-Roupen,

[1] J. Duplessy and D. M. Metcalf, 'Le Trésor de Samos et la circulation monétaire en Orient latin aux XII^e et XIII^e siècles', *RBN* 1962, at 179–80.
[2] D. F. Allen, 'Coins of Antioch, etc., from Al-Mina', *NC* 1937, 200–10.

which do not correspond closely in style with any of Bohemond's issues. Types 1–6 constitute the main series, beginning (it has just been suggested) c. 1163. Type 6 is in a quite different style, and is obviously later than types 1–5. It may be as late as the middle of the thirteenth century. Allen's interpretation of types 1* to 3* (on which the crescents forming the chain-mail are inverted) is that they were certainly not part of the main series, and that they perhaps belonged to a second, unofficial mint, operated for Raymond-Roupen before he was in a position to issue coins in his own name. The years 1205–8 and 1216–19 have both been considered possible for Raymond-Roupen's coins; the earlier period is not, however, at all likely, both because he was a mere child, and because Bohemond's faction continued to control the citadel, where the mint was doubtless situated.[1] Types 1* to 3* might possibly belong to that time. There was a fresh specimen of type 3* in the Tripolis hoard,[2] deposited not later than c. 1222;[3] another explanation, therefore, would be that the 'unofficial series was struck for Bohemond (as its legend implies) while Raymond Roupen was in control of Antioch. New hoards may eventually establish the chronology more precisely. Meanwhile, as a working guide, we may divide the 'helmet' coinage into three phases:

Types 1–5	c. 1163 onwards
Types 1*–3* and Raymond-Roupen	c. 1200–20
Type 6	c. 1230–68

The criteria by which the types are defined are chiefly the letter-forms, although the style of the helmeted bust is also a consistent feature of the coins' style. The chronological order of types 1–5 is established with the help of mules linking 1 2, 2 3, and (?) 4 5. Type 5 is of very neat work, and its intermediate position in the issue suggests a comparison with, for example, *BMC* type XIII of Henry I, or type V of the 'short-cross' coinage, which mark a 'tightening up' of standards at the mint. The mule upon which the argument depends is, however, as Allen noted, questionable. It is an Al-Mina find, but was not acquired by the British Museum. Another apparent 4 5 mule is published below. The reverse is not really of type 5; the coin's style associates it with the issues of Raymond-Roupen. The presence of

[1] P. Z. Bedoukian, 'A Unique Billon of Levon I of Cilician Armenia and its Historical Significance', *NC* 1967, 189–97, at 193 and 195.

[2] D. H. Cox, *The Tripolis Hoard of French Seigneurial and Crusader's Coins* (NNM 59), 1933, pl. viii. 4. The other two 'helmet' coins were not described in sufficient detail for their type to be identified.

[3] Duplessy and Metcalf, op. cit.

type 5 along with type 1 and 'bare head' coins in the Aleppo hoard makes it necessary to consider whether type 5 could not be moved to a place at or near the beginning of the series. The legends of Allen's nine types are tabulated here for ease of reference:

	Obverse	Reverse
1	✠BOAHVHDVS	✠AHTIOCHIA
2	✠BOAHVHDVS	✠AHTI⁂OCHIA
3	✠BOAHVHDVS	✠AHTI⁂OCHIA
4	✠BOAHVHDVS	✠AHTIOCHIA
5	✠BOAHVHDVS	✠AHTIOCHIA
6	✠BOAMVNDVS	✠ANTIOCHIA
1*	✠BOAHVHDVS	✠AHTIVOCHHA
2*	✠BOAHV - - VS	✠AHTIOCIIIA
3*	✠BOAIIVIIDVS	✠AITIOCIIIA

FIG. 5.

The hoards about which records are so far available may be summarized as follows:

A. A large hoard of 'helmet' deniers discovered near Antioch some time before 1875 was described by Schlumberger as containing a few coins of Raymond-Roupen, and one of King Levon I of Armenia. Its deposit will have been not earlier than 1216.[1]

B. A hoard of three-hundred 'helmet' coins was acquired by Lambros. He was able to select 50 varieties. There were 9 coins of Raymond-Roupen, including 7 different varieties. He published all the latter, and a selection of 18 of the Bohemonds, in 1875. A number of his illustrations have been reproduced here. The date of deposit is, again, not earlier than 1216.[2]

C. The Keble College collection contains 4 coins bought in

[1] G. Schlumberger, 'Monnaies des princes chrétiens d'Orient à l'époque des Croisades', *Revue Archéologique*, 1875. [2] *Mélanges de Num.* 1874–5, 362.

Beyrouth in 1886. They are of types 3*, 6 (2), and Raymond-Roupen, and may very well have been a selection from a hoard. Two are catalogued below.[1]

D. The Tripolis hoard of 1929 contained 3 stray 'helmet' coins. One which is illustrated is of type 3*. The others cannot be identified from the catalogue.[2]

E. The Kessab hoard of c. 1932 contained 1 stray 'helmet' coin, which was not described.[3]

F. The Samos hoard of c. 1934 contained 1 stray 'helmet' coin, which was not described.[4]

G. The Al-Mina (Antioch) hoard of 1936 contained coins of types 1 (3), 2 (2), 3 (1 mule), 4 (3), 5 (3), 1* (1), 2* (1), 3* (2 and one mule), 4/5 mule (1), Raymond-Roupen (2), 6 (15), together with single specimens of Armenia, Déols, and Sidon. Deposit after 1226, and possibly a good deal later.[5]

H. The Aleppo hoard of 1964 contained 154 coins, of which 24 were of Lyons, 41 of Valence, and 89 of Antioch. The Antiochene coins were 10 of the 'bare head' type (of which one of type 1 is illustrated on **Pl. XIII**),[6] 75 'helmet' coins of Bohemond, and 4 of Raymond-Roupen. Of the 75, a sample of 15 was studied. They are of types 1 (8), 3 (1), 4 (1), 5 (3), var. with head right (1), and a type 3* which from its appearance and condition may well be an intruder. (One must suspect that the coins of Raymond-Roupen were likewise intrusive, in a hoard made up predominantly of types 1 and 5 with some of the earlier 'bare head' issues.)[7]

I. The residue of a parcel of 'helmet' coins obtained from the New York firm of Manfra, Tordella, and Brookes in the latter part of 1967 contained types 1 (3), 3 (1), and 4 (1). They are catalogued below.[8]

[1] The Keble College collection is now deposited on loan in the Heberden Coin Room, Oxford.

[2] Cox, op. cit.

[3] H. Longuet, 'La Trouvaille de Kessab en Orient latin', *RN* 1935, 163–83. The coin of Antioch was omitted by oversight from the summary in Duplessy and Metcalf, op. cit.

[4] Duplessy and Metcalf, op. cit., pl. xiii. 41.

[5] Allen, op. cit. Some of the Al-Mina coins were acquired by the British Museum.

[6] The coin, numbered H, is from different dies from nos. 1–16. 0·76 gm.

[7] I am indebted to Mr. Bruce B. Braun for a note about the hoard, which was said to have been found near Aleppo in the late summer of 1964. In order to explain the character of the sample, it should be said that the fifteen coins comprise (*a*) three which were bought when the coins were first listed in *Ancient Arts*, namely the variety with head right, and nos. 16 and 27; (*b*) a dozen more which Mr. Braun kindly loaned for study at a later date. The French element in the hoard is discussed in *HBN* 1969.

[8] Cf. (L).

J. A group of 5 'helmet' coins donated, together with 2 'bare head' coins, by Mr. C. H. Wolfe are all of type 1. They are catalogued below.

K. A parcel of 23 'helmet' coins, terminating with type 6, was found mingled with a hoard of several hundred coins of Lucca and Valence obtained by Mr. Subak in 1968. Early in the same year a smaller quantity of coins of the same composition was secured in Izmir by Mr. Weller, who kindly made them available for study. There was one further 'helmet' coin in his parcel. The coins were mostly somewhat corroded, and all except those of type 6 showed wear (see the comments on metrology below). One specimen was unidentifiable, but the other 23 are published here. The coins of Lucca and Valence are published in *HBN* 1969.[1] The 'Subak' hoard included types 1 (4), 3 (3), 4 (1), 5 (2), 3* (3), 4/5 (1), Raymond-Roupen (4), and 6 (5), plus one unidentified.

L. A hoard discovered in 1966 in Latakia, in the castle of Ras Shamra, contained 104 'helmet' coins, together with 76 'bare head' coins of Antioch, coins of Lucca and Valence, and English 'Short-cross' pennies.[2]

M. A hoard of 845 coins was discovered in 1966 in the vicinity of Antioch. So far as can be discovered, it consisted entirely of 'helmet' deniers, with the exception of one Armenian coin of Levon I.[3]

The hoards demonstrate the general sequence of the types quite clearly. As find-records they leave much to be desired: provenances are either unknown or open to uncertainty; parcels are incomplete and 'salted' with extraneous coins; the relative proportions of each type in a hoard are generally not exactly known. It is hoped that this listing of information, partial as it is, will prompt other students to make additions, since the recovery of more reliably attested hoards in the future is not something about which one can be very optimistic. The individual coins, meanwhile, can be used for a preliminary survey of the style and metrology of the 'helmet' series.

[1] I am indebted to Mr. Subak for his kindness in making the hoard available for study before dispersal.

[2] See above, p. 249, n. 2. Dr. Bedoukian has very kindly allowed me to study the hoard, part of which is in his collection, but most of which has been dispersed.

[3] Bedoukian, op. cit., at 189.

CATALOGUE AND NOTES

Variety with head right

Allen argues that these coins belong with types 1*–3*: 'the lettering suggests that they belong to the middle of the series, and excludes the common view that they were an earlier type' (Allen, p. 203, n. 1). **Fig. 6** shows (*a*) an example published by Schlumberger (*Mélanges*

FIG. 6.

de Num. 1874–5, 282) which is very like no. 1 below, and (*b*) a less distinctive coin, Lambros 1. The detailing of the chain-mail is 'experimental', and is probably enough to rule out an intermediate date; the annulets can be seen more clearly on another specimen, Schl. iii, 7, which is extremely similar, in both obverse and reverse, to no. 1. The small, neatly cut flan and the thick reverse cross of no. 1 are similar to the 'bare head' coins, and this again suggests an early date, as does the occurrence of a specimen in the Aleppo hoard. Schlumberger (p. 54) notes a variety in which the star and crescent are interchanged.

The coins marked with an asterisk are illustrated on **Pls. XIV–XV**.

*1. *Obv.* Extremely similar to **Fig. 6a**. The first N (for M) could be described as normally barred, but both are close to H's. Annulets on neck (to represent chain-mail). *Rev.* Thick, unseriffed cross (as on Schl. iii, 7); deep crescent. The N could be described as reverse-barred, but, again, it is almost identical with the H. 0·95 gm. Source H. Ashmolean Museum.

Type 1

The relatively large proportion of coins of type 1 even in a hoard as late in date of deposit as Subak's suggests that it was originally a large issue. The outline of the bust is characteristically tall and thin, with a pronounced 'waist', and is fairly symmetrical. The chain mail is made up by a row of crescents following the right-hand outline (the back); a second row follows the same curve in the middle of the area; and a few extra crescents are added to fill in the lower left corner.

The first coin below has a bust spreading much more widely at the base. Its style should be compared with that of the variety, published by Lambros, with the crescent in the *first* quarter (**Fig. 7**). The second and subsequent coins have a bust with a slightly different outline from the normal—tilted back a little, and with a proportionately larger head, reminiscent of type 5. Type 1*c* (with a dot on each side of the initial cross on the reverse) seems to be consistently in the narrower style. A variant has only one dot (nos. 12–13).

FIG. 7.

*2. *Obv.* Widely spreading bust. *Rev.* Dot between I and O. Unusually deep crescent. 0·94 gm. Source K.
*3. *Obv.* Bust somewhat in the style of Type 5. Small dot in annulet, for eye. The second N is not reverse-barred. 0·96 gm. H.
4. *Obv.* Obscure, but bust very similar to no. 3, and definitely with a round tip to the nose. 1·08 gm. I.
5. Obscure, but similar to nos. 3–4. 0·98 gm. J.
6. Smaller head, but the bust is still rather fatter and spreads at the base more than on the following coins. 1·02 gm. H.
*7. Characteristic bust. 0·86 gm. J.
8. Obscure, but very similar to no. 7. Undotted O on obverse. 1·01 gm. J.
9. Obscure, but very similar to nos. 7–8. Axe-like T on reverse. 1·03 gm. I. Ashmolean Museum.
10. Similar to no. 9. 1·06 gm. H.
11. Characteristic style. CIHA in error for CHIA on reverse. 0·98 gm. K.

Type 1c

*12. Variant with only one dot flanking initial cross on reverse. 1·01 gm. H.
13. Obscure, but very similar to no. 12. 1·05 gm. I. Ashmolean Museum.
*14. Characteristic style. 0·90 gm. J.
*15. Extremely similar to no. 14. 0·98 gm. H. D. M. Metcalf.
*16. Extremely similar to nos. 14–15. 0·99 gm. H. Ashmolean Museum.
17. Extremely similar to nos. 14–16. 0·94 gm. H.
18. Solid diamond shape for first V on obverse. 1·02 gm. H.
19. Obscure, but the same style. 0·85 gm. K.
20. Obscure, but similar. 0·84 gm. K.
21. Characteristic bust. *Rev.* Incompletely struck; type 1*a*/*b* or *c*. 0·98 gm. J.

Types 2 and 3

A group of three annulets between I and O on the reverse is the distinguishing mark of types 2 and 3. The lettering of these and type 4 (without the annulets) is characterized by an A with four dots added. Allen distinguishes between types 2 and 3, essentially, by the H, M, and N, which are singly barred in type 2, but double-barred in type 3. There are variants which he does not list, in which the bars are dotted. An elaborate example, illustrated by Lambros, is repro-

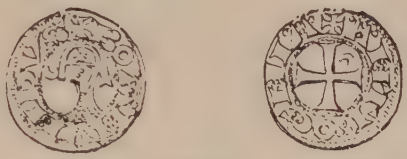


FIG. 8.

duced as **Fig. 8**. Note the characteristic outline of the bust—narrow at the neck, and curving well forward to the left, to end almost horizontally. Note also the 'double dotted' treatment of the C. A good many more specimens will be needed to establish the stylistic range: one of the 'Subak' coins is so far out of character that it might be a later copy. The coin from the Aleppo hoard is in very fresh condition, and may be useful for the chronology. The example which Allen published as a 1/2 mule (a superb coin, fully struck up and in fresh condition) might be better described as a variant of type 1, to which the group of three annulets has been added. The obverse is a near-duplicate, and the reverse is extremely similar, to no. 2 above.

*22. *Obv.* Dotted, double-barred N and H for M and N respectively. *Rev.* Dotted, double-barred N and H for N and H respectively. 0·86 gm. I. Ashmolean Museum.

*23. *Obv.* Dotted, double-barred N and И. *Rev.* Dotted, double-barred И and И. Note that the C is singly barred. 1·01 gm. H.

*24. Similar: dotted, double-barred N and H; N and N. 0·94 gm. K.

25. Similar: dotted, double-barred N and H; N and H. 0·65 gm. K (Weller).

*26. Lettering very obscure—perhaps single-barred? The bust is more in the style of type 6. 0·87 gm. K.

Type 4

The style seems to be very close to that of types 2 and 3, but the

bars of the letters M, N, and H are apparently always double and undotted.

*27. *Obv.* N and И. The loops of the B are of a peculiar construction. *Rev.* И and И. 1·06 gm. H. Ashmolean Museum.
*28. *Obv.* and *rev.* И and И. 1·12 gm. I. Ashmolean Museum.
*29. *Obv.* N and И. *Rev.* H and И. 0·94 gm. K.

Type 5

The large, dot-in-annulet eye is very distinctive, as is the strip of chain-mail running up in front of the mouth. The outline of the head is decidedly egg-shaped. The tip of the nose is rounded, and there is a large dot, superimposed on the outline, to represent the mouth. The M in AMTIOCNIA is not invariable. The blunder BOAMVƆNVS occurs on a type 5 coin from the Al-Mina hoard, now in the British Museum, and also on one from the Aleppo hoard (see below). Lambros 15 with the same reversal belongs, however, to the irregular series 1*–3*. A variant recorded by Schlumberger (p. 53) with BOAMVDDNVS was not illustrated by him.

*30. *Obv.* Characteristic style. Blundered inscription (see above). *Rev.* Note the long and elaborate C. 0·99 gm. H. Ashmolean Museum.
*31. *Obv.* Characteristic style. *Rev.* Long C. 1·01 gm. H. D. M. Metcalf.
*32. *Obv.* Extremely similar to no. 31. M with 'x' crossing. *Rev.* Variant with И for M. 1·04 gm. H.
*33. *Obv.* Extremely similar to nos. 31–2. *Rev.* Dotted N for H. 0·87 gm. K.
*34. *Obv.* Similar. *Rev.* И for H. 0·88 gm. K.

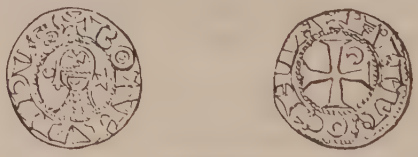


Fig. 9.

Types 1–3**

Chain-mail composed of crescents pointing downwards is the criterion of the series. Type 3* is in a consistent and recognizable style, with, for example, a 'seriffed' nasal projecting outwards at an angle, and a 'chin-strap'; and, on the reverse, a thick, almost unseriffed cross (see **Pl. XV**). Types 1* and 2* seem to be scarce, and very variable in their details of lettering, etc. It is too soon to say whether they deserve to rank as substantive types. An example published by Lambros (**Fig. 9**) has the dotted V on the reverse, which

is presumably derived from types 2–3 of the main series. If 1*–3* are from a second mint, they are necessarily imitative in some sense. The four specimens catalogued here all have die axes ← or →, and this is repeated on other similar coins, although it is apparently not invariable. The main series is not die-adjusted. If the irregular series turned out to be adjusted, to any great extent, it would tend to show that it was from a separate mint.

*35. *Obv.* Characteristic bust. M and N unbarred. *Rev.* AITIOCIIIA. 0·89 gm. K. D. M. Metcalf.
*36. Extremely similar. 0·85 gm. K.
*36 bis. Extremely similar. 0·94 gm. Ashmolean Museum.
*37. *Obv.* Extremely similar, but with an irregular form of A. *Rev.* Annulet between A and I. 0·84 gm. K.
*38. *Obv.* Very similar. The cross in the helmet is unusually large. *Rev.* Ray in third quarter, as on Allen, pl. x, 9. AIITIOCIIIA. The III towards the end are joined together to form NN ligate. 0·81 gm. H.

Raymond-Roupen, and the '4/5 mule'

There is great variety in the stops between the letters RVPINVS. As most specimens are weakly struck, many will be needed to establish the stylistic arrangement of the coins. It already seems possible, however, to distinguish two groupings:

FIG. 10.

(*a*) The crescents of chain-mail follow the curves of both the left and right outlines, with the in-filling in the centre. The nose and chin join neatly, as on **Fig. 10a**. The helmet is rather flattened in outline. The stops are groups of two or three annulets. The letter S (reversed Z) is compact. The '4/5 mule' from the 'Subak' hoard belongs with the coins of Raymond-Roupen of this description. See nos. 39–40.

(*b*) The crescents are spiky and seem to be spaced out in an even pattern unrelated to the outline, but there are in fact two rows parallel to the right outline, with in-filling at the lower left. The nasal is seriffed, and the nose is seriffed or even fish-tailed (see **Fig. 10b**). The chin is sketchy, and there is (on nos. 41–2 below) a thin crescent *in front of* and above the eye. Dots, which may be numerous, are used for the stops; and the star in the field is large. The letter S (reversed Z) is sprawling.

No. 43 does not correspond closely with either grouping, but it is matched by **Fig. 10c.** The stylistic variety of Raymond-Roupen's coins has all to be accommodated in a period of about three years, if the dates 1216–19 are correct: types 1–5 may have been issued over a period of forty to fifty years; thus, no arguments can be developed from the pressure of changes of style.

*39. '4/5 mule'. *Obv.* Extremely similar to no. 40. *Rev.* AMTIOCIIIA. The O is built up from several strokes and is dotted—unlike the very neat and regular O of type 5. The balance of the C is different, and the lettering generally is larger and not as neat. 0·79 gm. K. Ashmolean Museum.

*40. *Obv.* Apparently RVPIIVS, with room for a stop between the letters II; but the detail is obscure, and the die may have IN crowded together, with no stop. *Rev.* Die-flaw in fourth quarter. 0·91 gm. K. Ashmolean Museum.

*41. *Obv.* Note the first V and compare with no. 42. *Rev.* C without serifs. 1·06 gm. K. Ashmolean Museum.

*42. *Obv.* Extremely similar to no. 41. Wide N with dotted bar. *Rev.* The bars of the N and H are faint, but the H is apparently shown as a double-barred N. 0·97 gm. C.

*43. *Obv.* Bold style. Wide N with heavy, dotted bar. *Rev.* ANTOCIIIA 0·96 gm. K.

44. *Obv.* and *rev.* obscure, perhaps similar to no. 43. 0·93 gm. K.

Type 6

The style of type 6 is very consistent, and does not require comment.

45. C. 0·72 gm.

*46. K. 0·92 gm. Ashmolean Museum.

*47. K. 0·89 gm. D. M. Metcalf.

*48. K. 0·78 gm.

*49. K. 0·55 gm.

*50. K. 0·70 gm.

From what has been said, it may seem that the consistency of style within each type supports its identity, but that the order of types 1–5 has not yet been conclusively established. There is some reason to suspect that the variant with head right, and also type 5, are early. More evidence from hoards, and from individual coins, is required. Until a date-bracket can be put on each type, any ideas about the development of monetary affairs at Antioch in the second half of the twelfth century will remain so vague as to be uninteresting. Types 1*–3* and the coins of Raymond-Roupen evidently stand in the middle of the series, but their chronology in relation to each other is still altogether uncertain. Type 6 is late.

Allen noted that the coins from Al-Mina had been cleaned by electrolysis, and had lost about 12 per cent of their weight. Whether the weight-loss represented anything other than superficial dirt is not clear,[1] but it raises the interesting question of loss of weight by wear. The weights of coins of types 1–5 from various sources are shown in the table below: they speak for themselves, and it is only

	H, I, and J	*K*	*G*
1·01 and over	xxxxxxxxxxxx		
0·96–1·00	xxxxxx	x	
0·91–0·95	xx	xxx	
0·86–0·90	xxx	xxx	
0·81–0·85		xx	x
0·76–0·80			xxx
up to 0·75		x	xxxxxxx

necessary to add that the coins from sources H, I, and J, were by no means a selection of the choicest specimens. The average weight of the 'helmet' coins, before wear, was approximately 1·0 gm.—nearly a quarter heavier than the 'bare head' coins. The standard seems to have been well maintained up to the time of Raymond-Roupen. Type 6 was on a reduced weight-standard of about 0·8 gm. The fineness of the coins, without which the weights tell only half a story, is the subject of a forthcoming publication by Professor A. A. Gordus and the writer.

[1] I experimented by weighing a number of decent-looking (uncorroded) coins before and after electrolytic cleaning (with caustic soda and zinc). The coins came out looking slightly cleaner, and with a loss of weight consistently within the range 0–1·0 per cent.

STYLE IN MEDIEVAL COINAGE

By IAN STEWART

THE use of stylistic analysis in the classification and arrangement of medieval coin series has been growing in recent years. But while it has a legitimate role in numismatic study, the validity of its application and of the conclusions drawn from it are sometimes open to question. The occasion of writing the present paper was the discovery of a remarkable series of Scandinavian eleventh-century coins, illustrated below, in which dies of widely differing quality and style are linked together. But in view of the significance of such a series for the interpretation of stylistic diversity, it seemed worthwhile to take the opportunity to add some more general considerations.[1]

This paper is in three sections. The first deals with the details of the series of die-linked coins mentioned above, and of other cognate examples of die-linking between coins of widely different style. In the second section, the ways in which style has been used in medieval numismatics are considered, and in the third a number of examples are examined with a view to establishing the patterns of stylistic behaviour where other evidence is available.

I

The group of coins here figured was probably struck in Scandinavia during the first twenty years of the eleventh century. At this period, Anglo-Saxon coins supplied a large proportion of the currency of Scandinavia, and most of the relatively limited native issues consisted of copies of coins of Æthelred II (979–1016). These are not so much counterfeits as a derivative coinage, copying English prototypes, not to compete with them on their home ground but to obtain currency in a limited area through similarity to the well-known and acceptable money in which the English paid their Danegeld. As such, one would not expect among them much in the way

[1] I wish to thank Mr. Philip Grierson and Dr. Michael Metcalf for having discussed the matter of this paper with me in detail; I am indebted to both for ideas and references. That I have referred to Dr. Metcalf's work so often is due to the large share of new interest in stylistic classification which he has contributed and the fact that his writings concern series with which I have some first-hand acquaintance: I have not so much tried to pass comment on detail as to indicate that there may be other equally possible interpretations of the stylistic patterns which he identifies.

of stylistic achievement or homogeneity. But the diversity is extraordinary for a group whose close relationship is established by die-linking.

Fig. 1.

The obverse die which is common to all four is copied from the Long Cross type of Æthelred II. The die has been engraved as the real coin appears, so that impressions from it show the bust reversed, facing to the right instead of left, and the inscription retrograde. The engraver—there is no sign of the use of punches—has made a recognizable though blundered attempt to copy +EÐELREDREXANGLO which appears as EÐEORDERDAOLO.

Of the four reverses, that most nearly approximating to the obverse in style is one of Long Cross type with the forward inscription +P (on its face) V/FRIC/MΩO/HRO [**Fig. 1**].[1] Although there are Wulfrics amongst Ethelred's moneyers, none is known of a mint which could have been copied as (?) RO.

A second reverse of Long Cross type has the inscription +OV/ÐOLF/M¯OL/VND, in bold punched lettering [**Fig. 2**].[2] This die was obviously made by a literate die-sinker with access to a regular moneyer's equipment. Perhaps this Outholf could be the same man as an English moneyer with a comparable name—such as Othulf

[1] Copenhagen *Sylloge* 1642.
[2] Stewart, ex Lockett V, 500 (as Irish).

of Chester or York. The nearest reading at London is Osulf, but this is not a variant of the same name. Othulf at York is known only for the preceding type, Crux, with a single coin in Hildebrand, and Othulf at Chester is represented in Hildebrand by only two coins, both of the Long Cross type itself.[1] At both mints, therefore, he is a very rare moneyer; it seems not impossible that he could subsequently have moved to a mint in Scandinavia, in which case he might have been responsible for the present coin.[2] It is noteworthy that the letter M is of the flat-topped form characteristic of the *Subsidiary* variety of the Long Cross type which Mrs. Smart has recently defined.[3]

Both the other reverse dies are copied from Ethelred's Small Cross type. One [**Fig. 4**][4] is engraved, and has an entirely incomprehensible inscription, consisting of a series of vertical and diagonal strokes with no recognizable letter forms except the odd fortuitous N or Y. The other [**Fig. 3**][5] is of good style, a punch-made die reading quite legibly +LEOFPINEM(OPILT+I) and apparently a copy of an English die used by Leofwine of Wilton. His coins are of Intermediate Small Cross and Long Cross type, though Hildebrand lists a 'Long Cross/Small Cross' mule, his type Af, which must also be a Scandinavian imitation.[6]

A die-duplicate of **Fig. 4** was contained in the 1875 Lübeck find in which the English content belonged to the last four substantive types of Æthelred—Crux, Long Cross, Helmet, and Small Cross. Helmet was little copied but Long Cross (particularly, and both in Ireland and Scandinavia) and Small Cross were popular prototypes, and gave rise to a large series of imitations in the names of both Æthelred and Cnut. The current group also apparently derives from these two types, although the reverse of **Fig. 4** could be copied from an Intermediate Small Cross coin, a non-substantive type which appeared briefly near the end of the Crux type. Leofwine of Wilton is known

[1] York–Hildebrand, *Anglosachsiska Mynt*, 1881, no. 842; Chester—H. 1559–60.

[2] For the movement of dies themselves from England to Scandinavia, see *BNJ* xxx, 240 ff.

[3] *BNJ* xxxiv, 37. This letter has, however, only been noticed on coins of southern and eastern mints, and neither at Chester nor York. It is like a Greek Π, and has been called a 'goal-post' M; but this could mean an H, so 'croquet-hoop' would be less ambiguous.

[4] C. E. Blunt coll. same dies as Copenhagen 1676—see below.

[5] Visby Museum, ex 1938 Hemänge hoard, in which the imitations were mostly of Long Cross type, but some reverses copied Small Cross and Cnut's Quatrefoil. Photograph, C. S. S. Lyon.

[6] Hildebrand 4001.

for this extremely rare experimental type,[1] but not for the common Last Small Cross, during most of which, as during the whole of Helmet, the local minting was done at Salisbury following the sack of Wilton in 1003.[2] Though the coins of the present group, therefore, are probably as late as the end of Ethelred's reign, it is possible that they are earlier.

Here die-linked together, we have found five dies covering a wide range of stylistic variation:[3] two good punch-made reverses of different types, entirely literate; a near-literate engraved reverse of fair quality; a less well engraved and only semi-literate retrograde obverse; and a totally blundered engraved reverse. Such variety is not unusual in the Scandinavian series of the early eleventh century, but the linking indicates that die-sinkers and die-cutters of very different skill must have been working at about the same time and probably at a single mint.

It would be wrong to attach much weight to the implications of an admittedly imitative series, if linking between stylistically discrepant dies were confined to derivative coinages from unofficial mints. Such an occurrence can, however, be noticed in the case of regular and capital mints in states where autonomous coinage was established. Some examples will serve to show that it is perhaps more widespread than might be supposed.

Professor Peter Berghaus has recently published a pair of coins of Otto III (983–96) of the mint of Dortmund.[4] The obverse die of each is the same, well made and with large, clear, and rather thin letters. Both the reverses have smaller and thicker bold lettering, one with the mint name *Thert/manni* a little corrupted though quite recognizable, but the other with it in a much blundered form (TIERT / INIII).

The next case concerns the early Scottish coinage. Late in the reign of David I (1124–53) a uniform type of original design (a cross fleury with a pellet or other ornament in each quarter) was introduced. It was struck at the three border castles of Berwick, Roxburgh, and Carlisle, and superseded a heterogeneous series of coins copied from English types. Only a few literate dies of good style (Group I) were used at each mint. There is, however, a much greater number of coins of similar type from dies which were either poorly engraved, with

[1] *BNJ* xxviii, 75–87. [2] R. H. M. Dolley, *NNUM* 1954, 152–6.
[3] The chain could probably be extended considerably—e.g. the reverse of Copenhagen 1642 is the same as Cop. 1483, of which the obverse is a good Long Cross copy.
[4] *NNUM* 1967, 173–8.

legends only partially if at all comprehensible (Group II), or were of good style and made with regular punches by a capable die-sinker, but with meaningless inscriptions consisting of a mere jumble of letters—e.g. NRVOIL (Group III). As many as eighty years ago Edward Burns noticed coins which combined dies of these different groups, one with a regular obverse of Group I and a completely blundered reverse of Group II, another with its reverse of the same group, but its obverse of Group III.[1] True coins of Groups I and III are also known from both these respective obverse dies.[2] Recently I have come across, too, a sequence of three coins, Group II, Group II/III, and Group III, where the obverse of the second coin is from the same die as the first and its reverse from the same die as the third.[3] An intimate relationship thus exists between these three stylistically discrepant groups, and in view of the die-linking the presumption must be that they are all regular issues from official mints.

Berwick, which changed hands between Scotland and England on a number of occasions, provides another instance. The English coins struck at the time of Edward I's capture of the city in 1296 and of Edward II's visit in 1310 are in both cases of good style (akin to but not identical with that of the main mints in the south), only to be followed by issues of extremely crude appearance, the work no doubt of less skilled local craftsmen when official dies or experienced die-sinkers were no longer available to this remote mint. At both periods the older, official, dies were sometimes paired with clumsy new ones.[4]

A further series, lately studied in detail, which contains both competently made and rough dies, and links between them, is that of the York pence of Richard II (1377–99).[5] At some period during this reign, officially made dies were not available from London for the archbishop's mint and extensive issues were struck from locally made dies of crude style. Both at the start and the finish of this phase, mules occur between locally made and official dies respectively of the preceding and of the subsequent issues.

II

With such examples in mind, we may turn to more general considerations. Style has been much used, both in ancient and medieval

[1] *Coinage of Scotland*, 1887, figs. 21 (I/II mule) and 7B (III/II).
[2] Ibid., figs. 21A, and 7 and 7A.
[3] Ibid., fig. 8A is from the same obverse die of Group III.
[4] Blunt, *NC* 1931, 28–52; for mules, see Pl. I. 2–4, pl. II. 8.
[5] P. F. Purvey, *BNJ* xxxi, 88–108; mules pl. vii. 31–6A, pl. viii. 64–6, 69.

numismatics, for the purposes of establishing the sequence or date of coin series, of identifying the products of separate mints, and of differentiating between official and imitative issues. There may, however, be a temptation to use stylistic arguments without sufficient prior consideration of their applicability to a particular series. It is easy, for example, to make the rather general assumption that coins which are stylistically related must have been struck at the same place and at about the same time, and conversely that diversity of style implies diversity or mints or dates.

The first of these assumptions contains a solid basis of truth, which I imagine most numismatists would accept without question. Although apparent affinities of style occasionally occur between unrelated series, they are fortuitous and superficial. Close similarities, such as arise from the hand of a particular engraver or the use of the same set of punches, undoubtedly indicate a relationship. Coins which are so near to being exact duplicates that it needs minute examination to establish that they are from different dies carry much the same kind of implications as die-links in building up a cohesive pattern within a series. They must be close in time—not more than a very few years apart, rarely more than months—and the only important reservation to be made is that of the place of minting. Nevertheless, the evidence of coins of identical style (what Dr. Metcalf has called 'near-duplicates')[1] is always positive, and this paper is basically devoted to considering the other half of the question, to what extent and in what ways is diversity of style significant.

With ancient coinage, problems of arrangement are primarily chronological, and style is often one of the few keys available. The traditional framework of Hellenic coinage was based on style-periods related to the Archaic, Classical, and Hellenistic phases of Greek art. This pattern carried with it the general assumption that style developed gradually with a smooth and continuous evolution, the stages of which could be traced progressively through consecutive issues in a series. In an important essay entitled 'What is meant by "Style" in coinage?',[2] Dr. Sutherland has explained how the pattern of classical numismatics which flowed from Barclay Head's stylistic arrangement of Syracusan coins has within the last generation been

[1] e.g. *Classification of Byzantine Stamena*, Ljubljana, 1967, 50. See p. 287, n. 4 below.
[2] *MN* iv (1950), 1–12.

overthrown by the results of die studies, such as those of Ravel[1] on Corinthian *colts* and Seltman[2] on early Athenian *owls*.

In medieval coinage, style has been more often invoked as an indicator of geographical than of chronological patterns, though the significance of style at different stages in the long history of coinage from the fall of the Western Empire to the Renaissance has obviously varied greatly. Later medieval coins, from the thirteenth century in western Europe generally and in many cases from a much earlier period, belong to an age of mass-production, when almost indistinguishable dies were made in hundreds and sometimes thousands by the use of punches which supplied almost all the individual components of type and inscription. The scope for personal idiosyncrasy in die-sinkers was thus virtually eliminated, and the modern numismatist's task is the relatively objective one of identifying the use of a particular form of punch for a head or crown or heraldic device, and of a particular fount of letters in the inscriptions. By the use of these clues, it is possible to group together coins which were struck from dies made within a limited period of time and probably at the same place. It is, of course, a separate question to establish, in the absence of mint names, whether or not all such dies were used where they were made, or whether they were distributed to other mints as well.

On the other hand, in the Dark Ages as a rule and to a greater or lesser extent in the age of the silver penny from the ninth to the twelfth century, the design of western coinage was such as to contain important elements of type if not of inscription, the exact form of which depended on the skill and taste of individual craftsmen. This is the characteristic of engraved, as opposed to punch-made, dies, and they are the work of die-*cutters*, not die-*sinkers*. Areas of design, such as faces and decorative motifs, are drawn freehand, and lettering also is hollowed out of, and not punched into, the surface of the die. Often punches and engraving are combined, but it will always be those elements of a coin-type which derive from the latter which will contain the most individual and recognizable stylistic properties.

It is, therefore, not surprising that the most far-reaching interpretations of stylistic analysis have been related to earlier rather than later medieval coinages, particularly since the habit of identifying ruler or mint or both was one which spread rapidly in the age of the penny, and was more or less universal by the later Middle Ages. In the Dark

[1] 'The Classification of Greek Coins by Style', *NC* 1945, 117–24.
[2] *NC* 1946, 97 ff.

Ages there is on the whole the greatest stylistic variety and the least consistent direct evidence of place and date, and therefore not only the most scope for stylistic analysis but the greatest temptation to base the whole arrangement of series upon it. The following examples thus come predominantly from the Dark Ages and their immediate aftermath.

Indeed, we come face to face with a celebrated stylistic *cause* at the very threshold of the Middle Ages in Britain. Attempts have frequently been made to find a coinage for the fifth and sixth centuries in this country, and some degenerate imitations of late Roman copper coins have even been supposed to have stylistic—and consequently chronological—affinities with the earliest Anglo-Saxon silver coins. Some highly distinguished numismatists have at times lent their support to these theories. Mattingly, for example, thought some of the later imitations could be regarded as the fifth-century coinage of Hengist and Horsa,[1] and others, such as Mr. Allen and Mr. Hill,[2] have (in the past) expressed the view that some so-called 'sceatta-like imitations' were not sub-Roman issues, but the money of the Teutonic invaders later in the sixth century. These datings were based almost entirely on supposed stylistic relationships.

Style has also played a great part in the arrangement of the early gold and silver coinage of the Anglo-Saxons, in the seventh and eighth centuries. Intricate sequences have been worked out on the basis of stylistic degeneration and typological evolution, and separate streams identified as representing the parallel series from different regions or mints. The discrepancies between the conclusions of different scholars illustrate the dangers of this type of approach. Unless firmly related to other series by hoard evidence, and based also on considerations of weight and fabric, stylistic arrangements of this kind remain largely subjective. But even variations in the contents of hoards can be explained by one scholar as being due to different regions of circulation and by another as reflecting a difference in date of burial.[3] And proposals for spreading the whole of the so-called 'sceatta' series over periods respectively of 140 years and of half that time have equally been advanced.

One of the most elaborate schemes of this kind has recently been published by Dr. Tomasini in respect of the sixth-century pseudo-imperial gold tremisses of the Visigoths. Following the work of

[1] *The Richborough Hoard of 'Radiates'* (*NNM* 80, 1938), p. 13.
[2] D. F. Allen, ibid., App. B. P. V. (Blake-)Hill, *BNJ* xxvi, 11 ff.; *NC*, 1949, 142–57.
[3] S. E. Rigold, *BNJ* xxx, 26.

Reinhart, he has developed a complex pattern of stylistic groups attributed on slender evidence—the location of Visigothic capitals and of the mints of Leovigild, and some hints as to the provenance of individual specimens—to a number of different mints, and also followed through the development of 'style group progressions' from the time of Anastasius (491–518) to the autonomous issues of Leovigild (568–86). Dr. Tomasini rightly prefaces his attributions with a caveat: 'Problems of stylistic attribution are so involved with the world of subjective reality that even the modern scholar must be humbled by and compassionate for the failings of his predecessors.'[1] The author nevertheless appears to have based virtually the whole structure of his arrangement on artistic and stylistic analysis.

A number of studies by Dr. Metcalf on Carolingian and English coinage of the second half of the eighth century should also be cited. His stylistic analyses are in many respects admirable—for instance the undoubtedly significant grouping of Offa's moneyers Eoba, Ibba, Eadhun, and Ealraed.[2] Some of his Offa groups he would explain as the products of non-Kentish mints, and he has also attempted general classifications by style of various Carolingian coins into earlier and later groups.[3] Thus 'The series of pre-reform deniers of Charlemagne conventionally attributed to Mainz includes a wide range of stylistic variation. The coins can be put into a sequence by reference to die similarities.'[4] Besides these geographical and chronological interpretations of stylistic variety, Dr. Metcalf has also sought to identify in these series the products of what he terms 'imitation and moderately honest forgery'.[5] By slight variations of design, differences of letter forms, or oddities of style, he has classified certain coins of Offa and Charlemagne as contemporary imitations, even tentatively ascribing on the basis of provenance an Italian origin to one from a Swiss hoard (Ilanz)[6] and to another from a famous Italian collection (Borghesi).[7]

In Byzantine coinage, too, Dr. Metcalf has undertaken detailed stylistic studies, dividing, for instance, the folles of Theophilus into seven groups[8] and the nomismata of Alexius I into four groups,[9] in

[1] W. J. Tomasini, *The Barbaric Tremissis in Spain and Southern France—Anastasius to Leovigild* (*NNM* 152, 1964), ix–x.

[2] 'Offa's Pence Reconsidered', *Cunobelin* ix 1963, 50–2 (reprint pp. 14–16).

[3] e.g. in 'Coins of Pepin Minted at Saint-Denis?', *Cunobelin*, 1965, 23. (Dr. Metcalf is drawing a contrast, in style and metrology, between two substantial groups of coins in two separate hoards, Imphy and Ilanz.

[4] *HBN*, 1965, 13.

[5] *HBN*, 1966, 380.

[6] *HBN*, 1965, 15.

[7] *HBN*, 1966, 391.

[8] *ANS Museum Notes* x (1962), 81.

[9] *HBN* 1962, 271–84.

both cases with the implication of separate mints (e.g. for the latter: Constantinople, ? Nicaea, a Balkan mint, and ? Trebizond). Such studies as these, or rather the conclusions drawn from them, have not always commanded general assent.

Although Dr. Sutherland has quite recently made an eloquent restatement of the case for a coinage in Britain in the fifth and sixth centuries,[1] neither Mr. Hill nor Mr. Allen themselves now support it. Strong archaeological arguments have been adduced against it. Supposedly 'late' copies have been found in stratifications almost contemporary with their prototypes;[2] they have been found in certainly early hoards—only to be dismissed as fortuitous stylistic freaks;[3] they are not found in sixth-century archaeological contexts; and the Anglo-Saxon denarii[4] which they are supposed to resemble are now recognized to have started no earlier than the late seventh century, with gold coinage only becoming established in the middle of that century. A copper currency at this date would be at variance with the universal pattern in north-west Europe of a high value coinage mainly in gold. It is fair to say that the weight of modern opinion is now in favour of a complete break in the use of money in Britain between the ancient and medieval periods.[5]

To the extent that stylistic patterns coincide with the more solid evidence of hoards, weights, and fineness, they can command the greater attention. But the very differences between Rigold's arrangement and those which have gone before it are evidence of the variety of interpretation which can be placed on the same material. So, too, the structure of Dr. Tomasini's conclusions has been severely questioned by no less an expert on the continental material of the Dark Ages than M. Lafaurie.[6]

Dr. Metcalf's analyses have been criticized not so much for themselves as for the inferences drawn from them. Professor Bellinger's comments on the coinage of Theophilus, published since this article was drafted, contain a useful commentary on the use of stylistic

[1] 'Coinage in Britain in the Fifth and Sixth Centuries', *Dark Age Britain: Studies Presented to E. T. Leeds*, 5.

[2] e.g. B. H. St. J. O'Neill, *NC* 1948, 226–9.

[3] *BNJ* xxvi, 1949, 7.

[4] Traditionally called 'sceattas'. They are, however, presumably the same denomination as the later broad, thin penny (Grierson, 'La Fonction sociale de la monnaie en Angleterre aux VII^{e}–VIII^{e} siècles', *Moneta e Scambi*, Spoleto 1961, 353–5); they should therefore really be called pennies, or denarii; Mr. Dolley's 'proto-pennies' is a sensible technical term to distinguish them from the later pence.

[5] The position is usefully summarized by J. P. C. Kent in *Anglo-Saxon Coins*, 5–7.

[6] *RN* 1966, 336–8.

criteria and their limitations.[1] On Alexian nomismata, it may be that the different groups could as readily be explained in other ways, such as, for example, on the basis of their representing different officinae or consecutive issues at the same mint (or perhaps by a combination of both) as by the supposition of separate mints. Much the same applies to some of Dr. Metcalf's stylistic groupings in the western coinages of the eighth century.

It is not the place here, however, to go into a detailed discussion either of the foundations of the various stylistic classifications which have been mentioned in this section or of the objections which have been raised against them. The paragraphs above will suffice to show the very important place which style has been given as an instrument of numismatic arrangement: the most appropriate commentary can be provided by considering the stylistic behaviour of coin series where there is independent evidence of mint or date or sequence.

III

First, what is the general evidence of mint-signed medieval coins as regards uniformity and diversity of style?

In the later medieval period, punch-made dies were very often manufactured in large quantities at a single centre and distributed to subsidiary mints, with a resultant homogeneity of style and detail throughout. This is the case in general, for instance, in main national coinages, such as the French or English, which frequently employed a network of mints, although the system was by no means without its exceptions, like the York coins of Richard II described above. In earlier periods stylistic groupings tend to be more localized, although they often encompass a number of mints.

Longuet observed several cases in Merovingian coinage where a group of coins bearing the names of different mints and moneyers possessed a stylistic unity only explicable in terms of their being the work of a single engraver. For example, he quite convincingly grouped together, as the work of one artist, tremisses from the mints of Jublains, Cormes, and Ruan, and as that of a second others with the names *Curciaco*, *Noiordo*, and *Bassus Portus*.[2] A much more comprehensive series was noticed by Dr. Horst-Ulbo Bauer in

[1] *MN* xiii (1967), 136–41; Dr. Metcalf will reply in *MN* xiv.
[2] *RN* 1939, 43–6.

connection with a tremissis of the moneyer Rauchomaros at Cologne.[1] This coin shared a stylistic uniformity with coins of a great number of other mints (at each by a different moneyer) in northern and eastern Gaul—Huy, Soissons, Metz, Cologne, Strasbourg, Speyer, Mainz, Zülpich, Maastricht, Château-Thierry, and Verdun—and most if not all of these were very reasonably ascribed to the work of a single itinerant die-cutter. MM. Lafaurie and Yvon soon added seven more places to this impressive list—Namur, Mouzon, Laon, Naix-aux-Forges, Dinant, *Saxo-Bacio*, and Toul.[2]

Comparable, but even more comprehensive, stylistic groupings exist in later Anglo-Saxon coinage. Mr. Dolley first noticed them in the Last Small Cross type of Ethelred II (979–1016) and Mr. Lyon and he have since worked out similar patterns in the next succeeding issue, the Quatrefoil type of Cnut (1016–35).[3] Mr. Dolley's *Small Cross* styles follow a well-marked geographical pattern, and have given rise to his theory that at this stage Anglo-Saxon coinage was organized on a regional basis, with a centre, or centres, supplying dies of uniform style to a number of mints in a kind of monetary diocese. Because of the mint-names which were read on the reverses associated with them, Mr. Dolley designated the various styles of portrait which he identified as 'London', 'Southern', 'Southwestern', 'Western', 'Northern', 'Eastern', and 'Southeastern', in some cases with more than one variant associated with a single area.

If it were not for the fact that Merovingian coins normally, and later Anglo-Saxon coins always, bear the names of moneyers and mints, a scholar working on stylistic criteria would probably have assigned the majority of the coins in each stylistic grouping to a single mint. Using Mr. Dolley's analysis, he might, not unreasonably, have argued for the existence of seven (or a few more) mints: and if find-spots or other evidence for localization were available, he might no less reasonably have postulated mints at, say, London, Winchester, Exeter, Chester, York, Norwich, and Canterbury. Furthermore, because of overlapping of styles between mints, the occurrence of more than one style at a single mint would have led to the attribution of coins, which we in fact know were struck in the same place, in part to one and in part to another or others of them. For example, though most coins of London have obverses of the 'London' style, and most

[1] *SMZB* ii (1951), 96–102.
[2] *BSFN* April 1952 (p. 106), May 1953 (p. 195); also Yvon in *RN* 1953, 67–77.
[3] *Some Reflections on Hildebrand Type A of Aethelraed II*, Stockholm, 1958.

of Canterbury 'Southeastern', there are a few Canterbury coins of 'London' style, and a few London coins of 'Southeastern'.

This leads to the question of how frequently coins of diverse style or type were issued from a single mint more or less contemporaneously. The difficulty, of course, is to distinguish the issue of such varieties in parallel from those not uncommon cases—some are discussed below in the context of stylistic sequence—where they were consecutive. There are cases in Merovingian coinage, for example, of wide stylistic variety within the issues of a single mint; and also in Carolingian coinage, such as the Duurstede deniers of Charlemagne of the type found in large numbers in the Krinkberg hoard or the Louis the Pious portrait coins of Melle.[1] Yet even if these variations of style are due in part to the passing of time, the over-all periods concerned are not particularly long; and if a relatively short phase of coinage at a certain mint can give rise to stylistic variations amongst coins of which we cannot establish the exact date or sequence, then diversity of style may obviously be explained in this way as easily as by the assumption of different mints or of simultaneous production at the same mint.

For this reason it is generally difficult to point to clear instances of the parallel issue of coins of different style from the same mint. In the earlier Byzantine period there were often several *officinae* within a single mint, whose products differed in minor typological details and occasionally also in the treatment or style of the design, though separate *officinae* amounted virtually to separate (though related) mints in the same city. However, as Professor Bellinger has recently remarked, there are clear cases, in the coinages of Justinian and of Heraclius, where stylistic variety occurs amongst coins of the same date and *officina*.[2]

The overlap between mints of Mr. Dolley's Anglo-Saxon regional styles also gives rise to variety within mints. When we reach the age of standardized dies in western European coinage, there is sometimes evidence of more than a single chain of varieties, implying perhaps the parallel issue of different workshops, or of the simultaneous availability of dies made from stylistically distinct sets of punches. Apparently parallel issues have been noticed at various points in the London issues of Edward I,[3] and following the recoinage of 1300 there are clear indications that dies of two differing styles—which represent

[1] Morrison, *Carolingian Coinage* (*NNM* 158), nos. 330–7 and 393–407.
[2] Loc. cit., pp. 137 f.
[3] *BNJ* xxxi (1962), 82.

the two basically consecutive Fox groups IX and X—were at least for a short period both available together.[1] A more complex situation seems to have prevailed following the Scottish recoinage of c. 1280, when dies of at least six classes of different style were used within a short period. They are closely linked amongst each other in a way that precludes the assumption of a simple sequence; and their uneven distribution as between one mint and another can be explained only by the simultaneous distribution and use of dies of more than one of the styles.[2] This is indeed what one might expect with concerted mint activity during a recoinage.

It is important, however, to distinguish between typological and stylistic differences, though sometimes the one embodies the other. Where coins of more than one type are of the same style, they can normally be assumed to have been of associated issue. For instance, to judge from their uniformity of style and details, the Canterbury mint in the early 820s was apparently issuing both portrait and non-portrait pennies,[3] and under Henry VII the London mint put out experimental groats with a fine Renaissance portrait in profile alongside continued issues with an impersonal facing head in the medieval tradition.[4] Less clear-cut typological differences have often been used to classify groups within an issue, and die-cutting 'styles' based on small details of type. Of such a kind are some of the criteria used by Dr. Metcalf on Byzantine copper coins—e.g. the number and arrangement of dots in the tufa on Theophilan folles. Objective features like these should alert us to look for (but do not themselves amount to) the separate styles which often accompany them and which may indicate the work of individual die-cutters: whether in turn these may be associated with separate mints is another question.

In less rigidly organized coinages variations of style are quite clearly no more and no less than the measure of the competence or the approach of individual die-cutters. There must certainly have been circumstances when more than one die-cutter was on call to a particular mint over a period or when a temporary replacement was required because the regular engraver was not available; these would result in an intermingling of personal styles, such as is illustrated in extreme form by the die-links of Section I. In a more sophisticated series, a group of related coins of Coenwulf of Mercia (796–821) exhibits what could be regarded as the characteristics of such

[1] *NC* 1963, 100–1.
[2] Cf. *BNJ* 1966, 139.
[3] *BNJ* xxxii (1964), 14–18.
[4] *BNJ* xviii (1925–6), 1–62.

circumstances: though united by the cross-crosslet as the principal reverse type and the recurrence of a small number of moneyers' names, the coins are of several discernible styles, presumably the work of separate engravers, and of each style some appear to be earlier, and some later.[1] Furthermore, coins of the same moneyer can be of more than one style, a feature clearly demonstrated by Dr. Metcalf in respect of the coins of the moneyers Ibba and Eoba and others under Offa. His explanation of this phenomenon is based on the idea that the moneyers whose names appear on the coins were, in general, the same persons who cut the dies. Although this may on occasions have been true, I think his analysis indicates that while in some cases one moneyer, or a group of moneyers, was normally served by a particular engraver, the departures from such 'normal' styles are too numerous for these engraver-moneyer relationships to have been exclusive. Sometimes one engraver was much more or less artistic and technically efficient than another: then we see variations of portraiture wide enough to have given rise to suspicions that those of lesser quality may be the work of counterfeiters.

The problems of differentiating by means of style between official and imitative issues, and between genuine coins and counterfeits, are related to those of identifying the output of one or another mint or the work of this or that engraver. There are no simple rules. Coins of poor style, as already shown, may often be the issues of official mints. In how many cases, without die-links of the kind noticed in Section I, must crude or barbarous coins have met with understandable but, if the truth were known, unjustified suspicion? On the other hand, the best imitations of other series—some of the early Hiberno-Norse copies or continental forgeries of Edwardian sterlings—are so good that there are only the slightest stylistic clues to irregularity. To be reasonably confident, therefore, that a stylistically suspect coin is not of official origin, it is generally necessary to be able to point also to physical abnormalities—of weight, fabric, metal, or die axis —or to strong evidence of localization in the form of hoards or findspots.

Unevenness of style within an issue has often worried numismatists. Unless their coins are of base metal or light weight, we have no adequate means of telling whether less competent die-cutters, like those responsible for the coins of Offa of which Dr. Metcalf has doubted the authenticity, were working within an official mint or not.

[1] *BNJ* xxxii, 34–5.

As some coins[1] may be of better style than the bulk of an artistically undistinguished issue to which they belong, so in a series of generally high standard the work of an indifferent, but none the less official, die-cutter would stand out. The point has been well made by students of Greek coinage. Writing of a die-linked series of Corinthian coins of the same issue, Ravel commented: 'we find often next to examples of the best style of the epoch others of very poor style, sometimes so bad that they look as if they were made by an unskilled forger'. In much the same way, Seltman found it necessary to explain certain barbarous early Athenian tetradrachms as the work of semi-skilled craftsmen working alongside the true artist at a time of unusual mint activity.[2]

Extensive groups of imitations extraneous to the areas in which the regular issues originated are, of course, common in medieval European coinage. Frisian solidi copied from those of Louis the Pious,[3] a whole range of issues from the English Danelaw in the time of Alfred,[4] and Viking imitations in Scandinavia[5] and Ireland[6] of the English Danegeld coinage, are only a few of those where typical examples can be readily distinguished. With the Frisian solidi, deterioration of type and inscription is accompanied by a marked falling away in the quality of metal which confirms their unofficial origin. Yet it must be remembered that debasement of metal or weight is not itself an uncommon occurrence in official coinage, and may be combined with stylistic deterioration, as in, say, the coinage of Burgred of Mercia (852–74) or the late Perth groats of Robert III of Scotland (1390–1406). Though neither of these series would be expected to have given rise to a substantial group of imitations, their existence is a warning that the identification of imitative issues can often be no more than provisional.

Viking imitations range from close and deceptive copies to the outlandish. The difficulty comes with borderline cases. Sometimes they can be die-linked into certainly non-English series; or their nature may be revealed by discrepancies of weight, or by their concentrated occurrence in external hoards. The difficulties are well illustrated by Mr. Dolley's (perfectly justified) remark in support

[1] Like Leofthegn's, *infra*, p. 289. [2] *Supra*, p. 275, nn. 1, 2.

[3] Grierson, 'The Gold Solidus of Louis the Pious and its imitations', *Jaarboek voor Münt- en Penningkunde* xxxvii (1951), 1–41.

[4] *Anglo-Saxon Coins* 89–92.

[5] B. Malmer, *Olof Skötkonungs Mynt och Andra Ethelred-Imitationer*, Stockholm, 1965.

[6] Dolley, *Sylloge of Hiberno-Norse coins in the British Museum*, 1966.

of the English origin of an Ethelred II penny of the Second Hand type, of anomalous style and with a blundered obverse inscription, that it is of an issue prior to the outbreak of Scandinavian and Irish imitation.[1] For many doubtful pieces of later type, there is no such criterion, and the division between original and copy may be no more than the subjective judgement of a particular scholar that such or such a style is or is not compatible with a sufficiently established norm. Needless to say, such judgements do not always coincide.[2]

The weight of evidence required to establish a stylistic norm is not something which can be measured, though certain broad principles apply. At one extreme are varied or rare series, where the diversity is often such that it is simply impossible to say whether an individually unusual die is or is not official, except on other grounds such as the physical fabric of coins struck from it. In this category comes much of earlier medieval coinage. With the larger volume of surviving material from later centuries and the standardization of manufacture, it becomes progressively easier to point to non-conformity. Even so, there are tantalizing cases of doubt whether such non-conformity need reflect unofficial issue. An example will illustrate this. A small and very rare group of English Short Cross sterlings of consistent and peculiar style bears the names of Canterbury moneyers most of whom struck extensive and undoubtedly official issues about the end of the reign of John (1199–1216). One of the moneyers' names, Arnold, does not appear on the 'normal' series, but his 'abnormal' reverse is combined with a 'normal' obverse and this die-link opens the question whether this group of 'abnormal' dies may not have been used at the Canterbury mint in circumstances when the supply of 'normal' dies was interrupted. Without such a link, the Arnold series would immediately be assumed to be continental imitations. In many other cases, that kind of assumption would be justified, but the example serves to underline the ultimate reserve which must apply to arguments based on discrepancies from a norm however abundantly established.

After considering the implications of style for the classification of more or less contemporary coins into the products of different mints or die-cutters, official and unofficial, there remains the question of how the style of a coinage is likely to develop or change over a period of time. We need, therefore, to observe the stylistic patterns of coin

[1] *BNJ* xxxv (1966), 22.
[2] e.g. Dolley's review of Malmer, op. cit., in *NC* 1966, 366–9.

series of which the sequence and time-scale are fairly accurately known.

It is true to say that in the most general sense there is a style of one age or another which is discernible in coinage as in other media. There is a difference between the appearance of a groat of Edward III and one of Edward IV comparable to the difference between, say, the Decorated and Perpendicular styles of Gothic architecture. But in coinage much of this depends on the individual taste or ability of a particular engraver.[1] The broader stylistic divisions, between one era and another, are in effect largely differences of treatment—of the way in which types are chosen to fill the field of a coin, of the shape and form and size of letters. Yet even these can be illusory, and the apparent rules be infringed by traditional types, abnormalities, or archaism. It would be tempting to say that coins of Offa on which the portrait is given precedence, and a non-circular inscription distributed beside it, must be early because they look back to the manner or treatment of the thrymsas and 'sceattas': but if similar treatment is to be found on German coins two centuries later, the argument loses much of its force.

Even the broader divisions can thus be misleading, and coincidences of style, both between periods and places, are not uncommon. One might need, for instance, to turn over a coin with a mounted St. George on one side to see if the other was of Roger of Antioch in the early twelfth century, or of Manuel II at Constantinople 200 years later. Coins of the Stephen Civil War period from different parts of England, quite remote from each other, often display superficial stylistic affinities, no less than—though their remoteness is in time—do some radiate copies of Roman coins and eighth-century 'sceattas'. If unskilled die-cutters, copying the same types, have produced similar results, it is not surprising. Barbarism, as has been well remarked, is timeless and without localization; and one scribble is like another.

Comparison of style and its variations within a whole series is a more promising indicator of sequence than the appearance of individual coins. It has occasionally been proposed that the rougher and less literate examples of a series are the earliest, but the identification of more 'primitive' pieces by this means is usually wrong, and involves dating them to a period earlier than that of the comparatively good originals from which they have in fact degenerated.

[1] Cf. Sutherland (p. 274, n. 2 *supra*).

Thus Lindsay, reading only the letters AV on a group II sterling of David I, attributed it to David's predecessor Alexander (1107–24).[1] In a more elaborate case, Parsons attributed a semi-barbarous group of mid-ninth-century coins, which Mr. Lyon has now shown to be die-linked into the coinage of Ethelred II of Northumbria (841–9), to various rulers of some forty or fifty years earlier, the supposed readings being entirely imaginary.[2] Another case was the attribution by Van der Chijs of rough and degenerate deniers of Holland, which derive from those of Counts Thierry VII (1190–1203) and William I (1204–23) to Florent III (1157–90) instead of to Florent IV (1223–35).[3]

The usual pattern happens to be the exact opposite of this: for in new coinages special efforts were made to produce good dies, and new engravers—often from foreign mints—were enlisted. Oddities of style, minor variations of design, and errors also typify the early experimental stages of an issue before standardization was achieved, whereas designs and inscriptions tended subsequently to become simplified as an issue progressed.[4] Notable examples in later English coinage are the earliest Short Cross coins of the two recoinages of 1180 and 1205; Lawrence's rare classes I*a* and V*a*, which cover the earliest varieties of these respective issues, are full of singular dies, with odd letter forms and experimental portraits, whereas I*b* and V*b*, when most of the provincial mints were opened and the bulk of the recoinage took place, are remarkably homogeneous. Similarly, the earliest group of Edwardian sterlings of the 1279 recoinage, Fox group I, contains two or three very rare and unusual varieties, with experimental type or abnormalities of lettering or spelling.[5] Examples of such type-experimentation early in a new issue could be multiplied throughout medieval coinage.

In these recoinages sudden stylistic improvement occurred, in each

[1] Lindsay, *View of the Coinage of Scotland*, 1845, 5.

[2] Parsons, *BNJ* x (1913), 1–8; Lyon, *BNJ* xxviii (1957), 227–42.

[3] Van der Chijs, *De Munten der voormalige Graafschappen Holland en Zeeland*, pl. i and ii; corrected by A. T. Puister, 'Een Nieuwe Datering van de Denarii van de Graven uit het Hollandsche huis', *Jaarboek voor Munt- en Penningkunde*, xliv (1957), 17–27.

[4] A similar point is made by Dr. Metcalf in a study in the press—*Classification of Byzantine Stamena in the light of a hoard found in southern Serbia*, Ljubljana, 1968, forthcoming (= Situla, vol. ix). For the gradual shortening of inscriptions, see Dolley, *Num. Circ.* 1961, 240.

[5] e.g. errors: occasional dies lack hair, in 1180. Experimental portraits are common in 1205. Odd letter forms: Roman (square) E and C occur on early dies of 1180, Gothic ɦ on a few dies of 1279. Spelling: in 1205 the word *Rex* is split by sceptre *Re/x* as well as the normal *R/ex*; one die in 1279 abbreviated king's name to *Ed* (usually *Edw*) and the Irish title as *Hibn* (usually *Hyb*).

case following a gradual—but not even—process of deterioration to a very low level.[1] The coins of the five or ten years before 1205, indeed, had reached such abominable levels of crudeness that, without the mint name or the continuity of moneyers, it would have required a bold numismatist to propose that these were consecutive issues from probably the largest mint of the time in northern Europe.

Improvements in style are almost always sudden, representing the replacement of one engraver, or group of engravers, by another. Dr. Metcalf has suggested an instance of the gradual development in the style of a particular engraver in Offa's coinage,[2] but although this is possible in terms of the growing maturity of an individual craftsman, such an interpretation can only be a subjective one. In the more general sense, gradual improvement is not a natural quality of stylistic evolution, nor do the most artistic or literate examples of an issue come last in a series.[3]

It is quite impossible to judge the lapse of time involved in stylistic change without external evidence. In some cases, such as the *types immobilisés* of French feudal coinage in the eleventh and twelfth centuries, there appears to have been a continuous process of stylization over a very long period. This can involve gradual typological development, such as the profile head of the 'type Chinonais' which emerges eventually as a collection of geometric and heraldic symbols. The recent hoard from Fécamp, however, has shown that deniers of Rouen and Le Mans which have the appearance of late and degenerate style were probably close in date to their prototypes.[4]

Stylistic deterioration of an apparently gradual kind could certainly take place within a very brief period. There are one or two dies of the David group II sterlings already mentioned which have tolerably legible inscriptions; but only one or two, while on the great majority the inscriptions have deteriorated beyond recognition and the portrait has become a caricature. The other die-links that have been described, at Dortmund and York, show how style could decline rapidly and even suddenly; or there could be a temporary deterioration of style, if officially made dies were not available. Sometimes, too,

[1] Lawrence's diagram, *BNJ* xi (1915), 62, is a slight simplification of the progress of style in the Short Cross series, since there were some partial improvements in the periods of general decline.

[2] e.g. *Cunobelin* 1963, 51.

[3] Thus I would place the (literate) York Sword St. Peter coins with Cross-and-Pellets reverse earliest in their series, and the (blundered) type with Mallet on the reverse later ('The St. Martin Coins of Lincoln', *BNJ* xxxvi (1967), 46–54).

[4] Morrison, op. cit. 381–3.

there could be a temporary improvement above the general level of the time, with the advent of an engraver of particular skill: the coins of the moneyer Leofthegn in the Northumbrian copper coinage of Æthelred II may be cited—and here perhaps there is a case of the moneyer named on the coin being the engraver of the dies, for Leofthegn's coins, with a few exceptions, are of a wide variety of ambitious and interesting types unparalleled in the products of his colleagues.

How long a series of coins could continue in issue without exhibiting marked stylistic change is another question to which there is clearly no simple or general answer. It is, however, worth noting that even large sustained coinages from mass-produced dies underwent perceptible changes of style, as punches were replaced and types slightly redesigned at intervals of a few years. Only two of the fifteen main Fox groups of Edwardian pennies lasted as long as ten years and within each of those there were noticeable changes. In considering the length of related issues, therefore, where we have little evidence of date it is usually safer not to assume an unduly protracted period, particularly in the face of any degree of stylistic uniformity.

The sum of all this is essentially negative. It is that style alone is no more than a clue to arrangement, and that it is a proper tool of numismatic study only so long as it is used to suggest and not to prove. Often stylistic comparison will lead to links which can be established by other means; it may group some coins together and separate others, which independent evidence may indicate to be the products of this mint or that; it can draw attention to abnormality, though often it cannot explain it. Uniformity and diversity of style are, of course, frequently the respective consequences of related and unrelated mint activity. But they need not be so; in each case it is necessary to establish what, if any, is the norm. Defects of style may cast suspicion on the authenticity of a coin or group of coins, but more evidence is usually needed to establish forgery or imitation. In terms of time and sequence, style, neatness, competence of design, and intelligibility can deteriorate either gradually or suddenly; they can improve suddenly, but they do not improve gradually. Variations of style suggest experiment and the early examples of an issue; standardization will follow, but over long periods not without variety.

DATES OF THE TRAIKŪṬAKA KINGS OF WESTERN DECCAN AND OF THEIR COINS

By B. D. CHATTOPADHYĀYA

Two members of the Traikūṭaka family are known from epigraphic records, (1) Dahrasena, from his Pardi plate of year 207[1] and (2) Vyāghrasena, from his Surat plates of year 241.[2] A third epigraph, dated 245 and discovered at Kanheri,[3] refers to the prosperous rule of the Traikūṭakas (*Traikūṭakānā(ṁ)pravarddha-māna-rājya-sa(ṁ)vvatsara-śata-dvaye pañchachatvāri(ṁ)śad-uttare*) and may, on the strength of the date, be assigned to the period of Vyāghrasena. It appears almost certain that a large number of 'Kṣatrapa' type silver coins discovered from an extensive area in western India have to be attributed to this family. All these coins have the usual western Kṣatrapa type 'Bust of king to r.' on obverse and 'Chaitya and a cluster of dots bordered by a circular legend' on reverse.[4] These coins fall into two groups according to the reverse legend, one, with the name of Mahārāja Dahrasena, son of Mahārāja Indradatta and the second, with the name of Mahārāja Vyāghrasena, son of Mahārāja Dahrasena.

The names of the issuers of these coins are identical with the rulers mentioned in the Pardi plate and the Surat plates respectively and provide strong ground for the attribution of these coins to the Traikūṭaka family. The name of Indradatta, of course, does not occur in any of the epigraphic records and no reference to the descent of Vyāghrasena from Dahrasena is found in the Surat plates. But it may be pointed out that the coin legend indicating this relationship was fashioned after the 'Kṣatrapa' type legend[5] and the absence of parallel passages in the Traikūṭaka inscriptions does not pose a real problem for identification. The epithet *paramavaiṣṇava* is used by both Dahrasena

[1] V. V. Mirashi, *Inscriptions of the Kalachuri–Chedi-era*, *Corpus Inscriptionum Indicarum*, iv, pt. 1 (Ootacamund, 1955), 22–5.

[2] Ibid. 25–9. The date of the Surat plates was wrongly taken to be 232 by D. C. Sircar, *The Successors of the Sātavāhanas in lower Deccan* (Calcutta, 1939), 241.

[3] Mirashi, op. cit. 29–32.

[4] E. J. Rapson, *Catalogue of the coins of the Andhra Dynasty, The Western Kṣatrapas, The Traikūṭaka Dynasty and the 'Bodhi' Dynasty* (London, 1908), 198–203, pl. xviii.

[5] Ibid. 78 ff.

and Vyāghrasena of the coins. The Vaisnavite faith of Dahrasena and Vyāghrasena is equally evident from the expression '*Bhagavat-pādakarmakara*' given to both of them in their respective copper plates.[1] The identification is further confirmed by a comparison of the area over which the Traikūṭakas ruled with the main distribution-area of the present set of coins. The name Traikūṭaka suggests the association of this family with *Trikūṭa* in *Aparānta* (Northern Konkan)[2] and in the Surat plates Vyāghrasena is actually called *Aparāntādideśapati*. The copper plates, however, further suggest that the Traikūṭaka kingdom 'comprised the coast country, at least from the Kanheri area in the south as far as the district around Surat in the north'.[2] The coins occur within more or less the same territorial limits, if in a somewhat wider area. They have been found at Karhad,[3] Daman,[4] Kazad in Indapur taluk in Poona district,[5] at Kamrej near Surat,[6] and at Maski in Mysore State.[7] These provenances roughly correspond to the territorial boundaries of the Traikūṭaka kingdom and convincingly establish the point that Dahrasena and Vyāghrasena of the coins are identical with their Traikūṭaka namesakes. Epigraphic records and coins thus give the following Traikūṭaka genealogy:

Mahārāja Indradatta
|
Mahārāja Dahrasena
|
Mahārāja Vyāghrasena

The dates of these rulers and of their coins are at present determined by referring the years on their epigraphic records to the Kalachuri–Chedi era of A.D. 248–9.[8] Thus, a date around A.D. 455 has been postulated for Dahrasena of Pardi plate of year 207 and his son Vyāghrasena is believed to have been ruling in A.D. 489–93, on the basis of the dates, 241 and 245, of the Surat and the Kanheri plates respectively. Indradatta who is mentioned as the immediate

[1] Mirashi, op. cit. 25–9.
[2] R. C. Majumdar (editor), *The Classical Age*, iii, of *The History and Culture of the Indian people* (Bombay, 1954), 192.
[3] *The Journal of the Bombay Branch of the Royal Asiatic Society*, 1861–3, 11–12, fig. 13.
[4] *Transactions of the Seventh Oriental Congress* (Vienna, 1886), Aryan section, 220 ff.
[5] *The Journal of the Bombay Branch of the Royal Asiatic Society*, 1908, 1–7.
[6] *Annual Bibliography of Indian Archaeology* (Leiden), for year 1935, 34.
[7] *JNSI* xv, 167–9.
[8] For the current view on Traikūṭaka chronology, cf. Rapson, op. cit. clx–clxiii; D. C. Sircar, op. cit. 241–2; *The Classical Age* 192–4; Mirashi, op. cit. clxxix–clxxx; K. A. Nilakanta Sastri (editor), *A Comprehensive History of India* ii (1957), 323 and 332–3.

predecessor of Dahrasena on the latter's coins, has been assigned a place in the second quarter of the fifth century A.D.

The chief reason for referring these dates to the Kalachuri-Chedi era is the palaeography of the records, which is believed to be late. There is, however, no indication in the records themselves that the dates have to be referred to any particular era. As for the palaeography, it may be pointed out that the absence of adequate materials has so far kept the development of the southern script in the post-Sātavāhana period in considerable obscurity and the determination of the exact chronology of any record which may be referred to a transitional epoch, on the strength of palaeography alone, is a highly risky proposition. The origins of the southern alphabet used in the Traikūṭaka records and other records of a comparatively late date undoubtedly go back to the Sātavāhana–early Kṣatrapa period. The cave inscriptions of the period of Vāśiṣṭhīputra Pulumāvi[1] or Ābhīra Īśvarasena[2] exhibit signs of development from archaic characters. The Junagad inscription of Rudradāman[3] and the Gunda inscription of Rudrasiṁha I[4] may also be cited to illustrate this process of development and it may be presumed, though it can not be adequately substantiated at the moment, that in about hundred years time this process of change[5] had developed the character of the script quite considerably. A superficial comparison between the alphabet used in Traikūṭaka records with the one used in some other copper plates from central-western India may bear out this assumption. Palaeographically, Pardi, Surat, and Kanheri plates[6] exhibit almost the same features as are found in records like the Indore plate of Svāmidāsa (year 67)[7] or the Indore plate of Bhulunda (year 107).[8] If the dates of these records are referred to the Kalachuri–Chedi era, as has been done by Mirashi, we have strong grounds to believe that this alphabet was already well developed by the beginning of the fourth century A.D.; even if the dates are referred to the Gupta era,

[1] Cf. *Epigraphia Indica* vii, pl. iii. 20.
[2] Ibid. viii, pl. vii. 15.
[3] Cf. the remarks made by the editor of the record in *Epigraphia Indica* viii, 38.
[4] Ibid. xvi, 233 ff. and plate facing p. 236.
[5] The recently published Gondal inscription of the time of Rudrasena III (ibid. xxxv, 191 ff.) does not seem to fall in this line of development. Despite the statement that the characters of the record belong to the Brahmi alphabet 'as found in other inscriptions of the śakas of western India', the use of the archaic forms of *pa* and *ma* as late as A.D. 350–1 makes the record palaeographically distinct.
[6] Mirashi, op. cit., pl. iv*a*, iv*b*, and v*a*. For Pardi plate, cf. also *The Journal of the Bombay Branch of the Royal Asiatic Society* xvi, between pp. 348 and 349.
[7] Mirashi, op. cit., pl. ii *a*. [8] Ibid., pl. ii *b*.

according to the suggestion of R. C. Majumdar and others[1] it would still place the Indore plate of year 67 in the fourth century A.D. It may be pointed out further that some trace of maturity in the use of this alphabet may be noticed in the Indore plate of Bhulunda and in some other records written with the same alphabet (cf. Barwani plate of Subandhu of year 167,[2] Bagh plate of the same ruler[3]) and this feature may suggest a late date for these records as compared to the copper plates of the Traikūṭaka rulers.

In any case, however, palaeography alone fails to provide any positive evidence for determining the chronology of the Traikūṭaka rulers on more or less an accurate basis. There is, on the other hand, a body of numismatic evidence which may be of some usefulness in this connection and which may help revise the dates usually given to the Traikūṭaka rulers.

As pointed out before, Traikūṭaka coins issued by Dahrasena and Vyāghrasena are actual imitations of western Kṣatrapa coins. Kṣatrapa coins, however, ceased to be issued after the Gupta conquest of Gujrat and Kathiawar and the latest dated specimens of Kṣatrapa coins can be put between A.D. 388 and 398.[4] The fact that the Guptas started minting silver coins on their own soon afterwards is evident from the complete absence of Kṣatrapa coins after A.D. 388–98, around which date Chandragupta II must have achieved his decisive victory against the Kṣatrapas. The earliest known date on the silver coins of Chandragupta II, which themselves were largely based on Kṣatrapa issues, is 90+X,[5] evidently of the Gupta era. The circulation of the Gupta coins in Gujrat-Kathiawar from the beginning of the fifth century thus poses the problem: How could Traikūṭaka Dahrasena imitate Kṣatrapa type coins in the middle of the fifth century when the prototype itself had been defunct over a long period of time? Continuation of the same type without any alteration in the period of Vyāghrasena who, according to the current view, was ruling around A.D. 493–8 makes the problem more intriguing. Imitation of Kṣatrapa coins in the period of Gupta rule in Kathiawar and Gujrat, when the Guptas deliberately made it their policy to dislodge Kṣatrapa currency through their own silver

[1] Cf. *Epigraphia Indica* xv, 287, 291; *Indian Historical Quarterly* xxiv, 75–7.
[2] Mirashi, op. cit., pl. iii*b*. [3] Ibid., pl. iii*c*.
[4] Rapson, op. cit. 192–4. A lead coin of Rudrasiṁha III with the date 314 (= A.D. 392) has been published in *JNSI* xxii, 119.
[5] J. Allan, *Catalogue of the Coins of the Gupta Dynasties and of Śaśāṅka, King of Gauḍa* (London, 1914), 49 ff.

issues seems extremely unlikely. It may be argued that the Traikūṭakas were issuing Kṣatrapa type coins in Konkan, southern Gujrat, and 'in the Mārāṭhā country on the other side of the Ghāṭs', while the circulation of Gupta silver currency was confined to more northern areas. The possibility of the circulation of Kṣatrapa currency outside the limits of the Gupta empire up to a later date cannot be entirely precluded, but there are strong reasons for believing that Gupta coins circulated beyond the limits of the empire in the south. Some specimens of Chandragupta II's rare silver pieces are reported to have been found in the Bombay Presidency[1] and may indicate their circulation in the south. 'A treasure of 1395 coins found at Sanand in the Satara District of the Bombay Presidency consisted of about 1100 pieces of Kumāragupta's winged Peacock type.'[2] These recorded findspots of Gupta coins may be taken to indicate the popularity of Gupta currency beyond the borders of the Gupta empire.

This is further evidenced by the silver coins of Kalachuri Kṛṣṇarāja,[3] which have been found at Nasik,[4] Karhad in Satara district,[5] in Bombay and Salsette,[6] besides other areas to the north and north-east.[7] A comparatively late inscription from Anjaneri in Nasik district[8] also refers to the circulation of *Kṛṣṇarāja-rūpakas*, presumably in that region. As Kṛṣṇarāja's coins were modelled on the silver issues of the Guptas, it is reasonable to believe that Gupta silver coins were in circulation in southern Gujrat and Maharastra country, besides other extensive areas in western India. The fact that the Traikūṭaka coins circulating in the same area were imitated from Kṣatrapa, and not Gupta coins, suggests, in the present context, pre-Gupta dates for the Traikūṭaka rulers.

Secondly, a comparison of the dates of Traikūṭaka records (207, 241, and 245) with a series of dates on Kṣatrapa coins may be shown to yield very interesting results which strongly confirm the suggestion regarding the dates of the Traikūṭaka rulers postulated above. A study of Kṣatrapa coins reveals that Bhartṛdāman, son of Mahākṣatrapa Rudrasena, was ruling in the capacity of a Mahāṣkṣatrapa from the year 204[9] and the latest legible date on his Mahākṣatrapa issues is

[1] Allan, op. cit. cxxix, n. 3; *The Journal of the Royal Asiatic Society*, 1889, 120.
[2] *The Journal of the Royal Asiatic Society*, 1889, 124.
[3] *JNSI* iii, 21–4.
[4] *The Journal of the Bombay Branch of the Royal Asiatic Society*, 1876, 213–19.
[5] *Bombay Gazetteer* i, pt. ii, 13.
[6] *JNSI* iii, 24.
[7] Ibid., p. 24, nn. 22 and 23.
[8] *Epigraphia Indica* xxv, 232, l. 39.
[9] *Archaeological Survey of India, Annual Report 1913–14*, 239 ff.

217.[1] After him was his son Kṣatrapa Viśvasena (years 216–26) who never ruled in the capacity of a Mahākṣatrapa.[2] After Viśvasena was a break in the direct line of succession and Rudrasiṁha II,[3] son of Svāmī Jīvadāman (known only from the coins of the former), came to power and ruled in the capacity of a Kṣatrapa between years 226 and 238.[4] He was followed by his son Yaśodāman II, a Kṣatrapa between years 238 and 254.[4] Mahākṣatrapa series started again only with Svāmī Rudrasena III who issued coins in that capacity between 270 and 300.[5] His line also introduced a break in the line started by Rudrasiṁha II. Svāmī Rudrasena III's coins refer to his father Svāmī Rudradāman II as a Mahākṣatrapa, which may suggest that the latter revived the position of Mahākṣatrapa some time before the year 270.

The fact that no one held the position of Mahākṣatrapa in the period between Bhartṛdāman and Svāmī Rudradāman II is a significant indication of the trouble which the Kṣatrapas were facing in this period. A careful study of the numismatic data of this period led Rapson to conclude: 'All the evidence afforded by coins or the absence of coins during this period—the failure of the direct line and the substitution of another family, the cessation first of the mahākṣatrapas and afterwards of both the mahākṣatrapas and kṣatrapas —seems to indicate troublous times. The probability is that the dominions of the Western Kṣatrapas were subject to some foreign invasion.'[6] The dates of Traikūṭaka records, if assigned to the Śaka era of A.D. 78 to which dates of all Kṣatrapa coins are referred, fit in with the situation which may offer some explanation as to why Traikūṭaka issues were so closely based on Kṣatrapa coins.

Superimposition of the Traikūṭaka series on the current silver coinage of the Kṣatrapas is also possibly suggested by the Karad (Satara district) hoard of coins, a very much 'dated' note on which was published by Justice Newton.[7] Regular succession in the Kṣatrapa line to the period of Viśvasena was represented by this hoard which also contained a Traikūṭaka coin. Commenting on this coin H. R. Scott wrote: 'The coin, which was evidently the only one of the

[1] Rapson, op. cit. 158; *Archaeological Survey of India, Annual Report*, 1913–14, 239 ff.
[2] Rapson, op. cit. 161–8.
[3] A. K. Narain suggested (*JNSI*, xii, 167 ff.) that his name should be read as Rudrasena and he should be considered as Rudrasena III. The reading Rudrasiṁha was upheld in ibid. xvi, 207–9.
[4] *Archaeological Survey of India, Annual Report*, 1913–14, 239 ff.
[5] Rapson, op. cit. 179–86.
[6] Ibid. cxlii.
[7] *The Journal of the Bombay Branch of the Royal Asiatic Society*, 1862, 1–63, 16–19.

kind known at the time, was found near Karad in the Satara district along with some Gadhia coins and coins of various Kṣatrapa kings going down as far as Viśvasena, son of Bhartṛdāman (A.D. 300)',[1] The break after Viśvasena in the present hoard may suggest some date around year 226 (which, again, corresponds to the date when there was a break in the direct line of succession among the Kṣatrapas) as the starting-point of Traikūṭaka coinage, though, as the Pardi plate shows, they had come into prominence by the year 207.

Finally, the suggested chronology for Traikūṭaka coins may further be confirmed by some relevant metrological data. These data are, of course, very much selective in nature, but they do tend to reveal a pattern which substantially favours the hypothesis made above.

It is generally admitted that Kṣatrapa silver coinage followed the hemidrachm standard[2] but individual specimens never conform to the standard too closely. In fact, different coins of a single ruler, issued in the same year, may exhibit substantial difference in weight. This led us to examine whether the average weights of Kṣatrapa coins and Traikūṭaka coins yield any pattern. The first twenty coins of Traikūṭaka Dahrasena, published by Rapson,[3] give the average weight of about 32·3 grains; the average weight of eight coins of Vyāghrasena is found to be around 32·8 gr.[4] The average weight of Kṣatrapa coins, on the other hand, seems to have suffered progressive deterioration, though at a very negligible rate, from the period of Bhartṛdāman. The first twenty coins of Viśvasimha,[5] Kṣatrapa between 199–20*x*,[6] are found to give the average weight of about 33·9 gr. The first twenty coins of Bhartṛdāman[7] give an average weight of about 32·4 gr., which may be considered to be at par with the weight standard followed in Traikūṭaka coins. The average weight, calculated by the same process, falls to 31·5 gr., and 31·7 gr. in the periods of Kṣatrapa Viśvasena[8] and Kṣatrapa Rudrasiṁha II,[9] respectively. Things do not seem to have improved even after the revival of the position of the Mahākṣatrapa. The first twenty coins of Rudrasena III as Mahākṣatrapa[10] give the average weight as

[1] Ibid. 1908, 3. Reference to this hoard has also been made in *The Bombay Gazetteer* i, pt. ii, 48–9; *JNSI* xviii, 220; Mirashi, op. cit. clxxviii.

[2] Rapson, op. cit. clxxiv.

[3] Op. cit. 198–200, nos. 930–49.

[4] Op. cit. 202–3, nos. 975–82.

[5] Op. cit. 147–50, nos. 627–46.

[6] Last digit uncertain.

[7] Op. cit. 155–8, nos. 676–96. Coin no. 695 has been left out in calculating this average weight because of its unusually heavy weight.

[8] Op. cit. 162–5, nos. 719–38.

[9] Op. cit. 170–3, nos. 767–87.

[10] Op. cit. 179–82, nos. 812–31.

30·1 gr. The standard seems to have remained the same throughout the last days of Kṣatrapa rule. Coins of Rudrasiṁha III,[1] one of the last Kṣatrapas, give an average weight around 30·5 gr. The silver issues of the Guptas circulating in the western provinces of their empire do not show any attempt on the part of the Gupta emperors to revive the heavier standard. Silver coins of Chandragupta II published by Allan[2] yield an average weight of about 29·4 gr.; the first twenty coins of Kumāragupta[3] yield an average weight of 29·9 gr., whereas in the 'Garuḍa' type coins of Skandagupta[4] the average is 29·2 grains. Average weights of 'bull' type and 'altar' type coins struck[5] by Skandagupta appear to be still lower.

These metrological materials, again, appear to fix the chronological limits of the Traikūṭaka coins, and for that matter, Traikūṭaka rulers, in a manner different from what has hitherto been assumed. The average weight (which may represent the actual weight standard current in the period) of Traikūṭaka coins corresponds closely to the average weight of Bhartṛdāman's coins; as all the series of coins after Bhartṛdāman show a pattern of decline in the average weight, it appears reasonable to assume that Traikūṭaka coins were also chronologically proximate to the issues of Bhartṛdāman. The year 226, postulated for the beginnings of Traikūṭaka currency, possibly does not go against these metrological data.

Conclusions from the evidence adduced above may be thus summed up. Numismatic data probably indicate earlier dates for Traikūṭaka rulers and Traikūṭaka coinage than have been so far given to them and a reasonable solution to the problems posed by the Traikūṭaka coinage as well as Kṣatrapa coinage seems possible only if the dates of the Traikūṭaka records are referred to the Śaka era. The known dates of the Traikūṭaka records, referred to the Śaka era, correspond to A.D. 285, 319, and 323. It is possible that Indradatta came to power sometime before 285 A.D. but the Traikūṭakas appear to have gained advantages against the Kṣatrapas after Bhartṛdāman and to have started circulating 'Kṣatrapa' type coins around A.D. 304. The last known date on Traikūṭaka inscriptions is 245 (= A.D. 323, referred to the Śaka era). The decline of Traikūṭaka power and possible discontinuation of Traikūṭaka currency after this date may

[1] Rapson, op. cit. 192–4, nos. 907–26.
[2] Allan, op. cit. 49 ff., nos. 133–40.
[3] Op. cit. 89 ff., nos. 258–77.
[4] Op. cit. 119 ff., nos. 432–44.
[5] Op. cit. 121–2.

partly be explained by the rise of Rudradāman II, mentioned as a Mahākṣatrapa on the coins of his son Svāmī Rudrasena III.

Finally, the dates suggested here do not appear to be in disagreement with other known facts relating to the history of the area over which the Traikūṭakas ruled. The use of the Śaka era in their records, which come from the south of Gujrat—Kathiawar, should not be considered unusual, as the Traikūṭaka coinage itself provides substantial evidence of what they borrowed from the Kṣatrapas. There is, again, possibly some justification in assuming that the Śaka era had been in use in this area as early as the period of Nahapāna.[1]

Kālidāsa's *Raghuvaṁśam*[2] refers to *Aparāntamahīpāla*, i.e. ruler of the *Aparānta* country and to *Trikūṭa*; but this reference does not seem to have any bearing whatsoever on the chronology of Traikūṭaka rule in the *Aparānta* country. The same may be said about the reference to the conquest of the *Trikūṭa* kingdom by Vākāṭaka Hariṣeṇa in the Ajanta record.[3] Reference to the geographical name *Trikūṭa* which survived, like *Aparānta*, to a later date,[4] does not necessarily refer to Traikūṭaka rule as well.

One of the earliest Kadamba records, the Chandravalli inscription,[5] refers to the conquest of Trikūṭa by Mayūraśarman. The chronology of Mayūraśarman's career is still largely hypothetical but the suggested dates for his rise to power lie between A.D. 320 and 350.[6] These chronological limits perfectly agree with the dates suggested for the Traikūṭaka rulers. If it is assumed that the decline of Traikūṭaka power was to some extent caused by the conquest of Trikūṭa by Mayūraśarman, the last-known Traikūṭaka date furnishes a positive datum for determining the date of Mayūraśarman with a fair amount of certainty.

[1] *NC* 1964, 271–80.
[2] *Sarga* iv, 58–9.
[3] *The Classical Age* 186.
[4] Cf. the evidence of the Anjaneri grant, *Epigraphia Indica* xxv, 231, l. 27; 232, l. 36.
[5] *Annual Report of the Mysore Archaeological Department for the year 1929*, 50.
[6] Sircar, op. cit. 233–4; cf. also *The Classical Age* 272.

A SMALL HOARD CONTAINING COINS OF ARDA-MITRA

By MICHAEL MITCHINER

THIS small group of coins is presented to help clarify the rather obscure place of Arda-mitra in the history and coinage of Afghanistan during the early Sassanian period. The twelve coins, all copper, are:

Indo-Parthian (5)

1–4. Pakores. Types of *BMC*, pl. xxiii. 8 Kharosthi letters illegible.
4·45, 4·89, 5·70, 6·85 gm.

5. Gondophares II or Orthagnes. Cf. MacDowall, *NC* 1965, Pl. xii. 3, 4, 6. The shape of the king's shoulders and the smaller bunch of hair differentiates this from the preceding coins.
5·20 gm.

Arda-mitra (3)

6–8. Arda-mitra, as MacDowall, ibid., Pl. XII. 11.
5·13, 5·40, 5·67 gm.

Sassanian (2)

9–10. Shapur I, copper tetradrachms of the type of Paruck, *Sassanian Coins*, pl. v. 90–2, 95, 96.
6·30, 9·51 gm.

Uncertain (2)

11. Type with Indo-Parthian bust, reverse obscure.
3·83 gm.

12. Type with bearded male bust r., reverse obscure.
5·85 gm.

The coins were acquired as a group and seem to have formed all or part of a hoard. All the coins have lumpy red-brown cuprous oxide deposits and show multifocal to generalized loss of metal. The changes are of about equal severity on all coins. The coins all show a thin superficial film of black cupric oxide. The changes indicate that the coins were damaged as a group by fire. Both the homogeneous grouping of the coins and the thin, even film of cupric oxide that covers the other damage strongly suggest that the fire damage occurred in antiquity.

The Indo-Parthian coins that are in a majority suggest a south Afghan provenance, while the presence of two copper tetradrachms of Shapur I (241–71) suggests a date of burial early in his reign.

Arda-mitra's coins

Coins of Arda-mitra are known only in copper. They were first described by Drouin[1] and were subsequently reinvestigated by Allotte de la Füye.[2] Their obverse type is a left-facing bust with hair bunched posteriorly; the whole surrounded by a Pahlevi inscription. The reverse type is a fire altar, without attendants, surrounded by three segments of Pahlevi inscription. They weigh 4·5 to 8·37 gm.[2]

The bust is of later Indo-Parthian type[3] and bears no resemblance to Sassanian or other portraits. The fire altar is of the type used by the Sassanian Ardeshir I[4] (226–40) but not by later Sassanians. Neither Drouin nor Allotte de la Füye were able to produce a definitive transliteration of the inscriptions. Allotte de la Füye concluded that the only certain words of the obverse inscription were *Bagi . . . malkin malka . . .* while the reverse inscription contained the word *Arda-mitra* though the first three letters could equally well read *HUR* or *KhUR*.

Drouin's eight coins came from Russian Turkestan. Further coins come from Russian Turkestan and a number of others from south Afghanistan.[5] The present coins presumably come from south Afghanistan.

The present coins are fire-damaged, as is my other coin of Arda-mitra (provenance unknown). There is no mention of fire damage to Drouin's coins but four of the twelve coins of Arda-mitra in the British Museum show definite evidence of fire damage in antiquity and one of these (Haughton collection) is probably from south Afghanistan. The severity of the fire damage and the nature of the superficial layer of corrosion (cuprous oxide, cupric oxide, or coloured copper salts) differs both among the British Museum specimens and from the present hoard and my other coin. It indicates that they were also burned in antiquity and in separate fires. A further four British Museum coins show suggestive, though not diagnostic, evidence of fire damage.

[1] E. Drouin, *RN* 1895, 47 ff.
[2] A. de la Füye, *RN* 1926, 158–69.
[3] D. W. MacDowall, *NC* 1965, 137–48; A. de la Füye, loc. cit.
[4] D. W. MacDowall, loc. cit.; A. de la Füye, loc. cit.
[5] D. W. MacDowall, loc. cit.

Sassanian occupation of east Afghanistan

The main source of information on the Sassanian occupation of this region is the trilingual inscription of Shapur I found at Naqs-i-rustam near Persepolis,[1] inscribed in A.D. 260 or shortly afterwards. Shapur lists the regions of his empire in order, ending with the three groups of eastern provinces: (*a*) Margiana, Aria and all of Abarsahr; (*b*) Kerman, Sakastan, Turane, Makuran, Paradene, Sind; (*c*) Kushanshahr from Pskbwr[2] to Kashgaria, Sogdiana, and Tashkent. It must be noted that Shapur does not say when these regions were conquered, nor does he lay any claim to the Punjab nor to the whole of the Kushan state.[3]

Tabari notes that Ardeshir established vassal kings in control of some of these eastern provinces.[4] Wilson notes[5] that coins of Ardeshir are not found in eastern Afghanistan though coins of Shapur I are. Curial[6] substantially agrees with this.

This cumulative evidence indicates that the Sassanians conquered eastern Afghanistan between the final years of Ardeshir's reign and the middle years of Shapur's reign.

Interpretation of Arda-mitra's coinage

Arda-mitra's coins are found almost exclusively in Afghanistan-Turkestan while Ardeshir's coins are found almost exclusively to the west of this area. Nevertheless Arda-mitra's coins are strongly influenced by those of Ardeshir. Ardeshir controlled a number of his eastern provinces through vassal kings. Thus Arda-mitra (the exact name is provisional) was presumably Ardeshir's vassal king of the Indo-Parthian kingdom of South Afghanistan.

But Arda-mitra's coins are found not only in south Afghanistan but also through Kushanshahr,[7] where they are equally plentiful in its Sogdian region. Either Arda-mitra, a minor vassal, conquered Kushanshahr or else his coins, struck in south Afghanistan, were transported there. A substantial number of his coins have been

[1] E. Honigmann and A. Maricq, *Res Gestae Divi Saporis*.

[2] A. Maricq, ibid. 101 ff.: probably Peshawar.

[3] This is considered in detail in my paper on the later Kushan copper coinage, now in preparation.

[4] As quoted by Honigmann and Maricq, op. cit. 106–7.

[5] H. H. Wilson, *Ariana Antiqua* 383.

[6] R. Curiel, *Mémoires de la Delégation Archéologique Française en Afghanistan* xiv, 124 ff.

[7] The geographical limits of Kushanshahr are stated in the Naqs-i-rustam inscription (*vide supra*). They are considered from the Kushan viewpoint in my paper on the late Kushan copper coinage.

damaged by fire; the present coins, which presumably come from the Indo-Parthian kingdom, were burned and buried in Shapur's reign. A number of archeological sites in Kushanshahr (Bégram, Airam, and probably Tali-Barzou) were destroyed by fire in Vasu Deva kushan's reign;[1] numismatic evidence indicates that the Sassanians conquered eastern Afghanistan during Vasu Deva's reign.[2]

Thus the Sassanian conquest of Kushanshahr can be related to the burning of Arda-mitra's coins, the anomalous distribution of his coins and the reign of Shapur I. Presumably Shapur campaigned in Arda-mitra's south Afghan kingdom, thus a substantial number of his coins were burnt. Then Shapur conquered Kushanshahr where Arda-mitra's coins were distributed as the small change of soldiers in his army. Thus the end of Arda-mitra's reign and the Sassanian conquest of eastern Afghanistan can be dated to the reign of Shapur I.

Presumably Shapur did not strike coins before his coronation in 241/2 and very soon thereafter he campaigned against Gordian III (242/3).[3] Thus Shapur's campaign in Arda-mitra's kingdom and his conquest of Kushanshahr can be dated to the ensuing period, A.D. 244–50.[4]

Conclusion

Arda-mitra (the reading of the name is provisional) was the last Indo-Parthian king of south Afghanistan and a vassal of the Sassanian Ardeshir I (226–40). The numismatic evidence suggests that Shapur I fought in the Indo-Parthian kingdom and then conquered Kushanshahr (the east Afghan-Sogdian province of the Kushan kingdom) in a campaign which took place shortly after his campaign against Gordian III. The conquest can be dated to the period A.D. 244–50.

[1] R. Ghirshman, *Bégram; Mémoires de la Delégation Archéologique Française en Afghanistan* xii, 148 ff.

[2] This is considered in detail in my paper on the later Kushan copper coinage, now in preparation.

[3] E. Honigmann and A. Maricq, op. cit. 30 ff. and 111 ff.

[4] Investigation of the Kushan coinage and related evidence, completed since this went to press, suggests that the Sassanians occupied Kushanshahr in two phases: Ardeshir conquered western Kushanshahr at the end of Vasu Deva's reign, c. A.D. 236, while Shapur I conquered eastern Kushanshahr as far as Peshawar from Kanishka II, c. A.D. 244–50.

NĀṆAKA

By SAMARESH BANDYOPADHYAY

THE *Mṛcchakaṭika* is perhaps the earliest among the available records to mention the coin-name Nāṇaka[1] which has been explained by a commentator as *Śivāṅka-Ṭaṅka*, i.e. a coin bearing the figure of the god Śiva.[2] In view of this explanation of the commentator and the description of Nāṇaka as of small value (*asāragata*) in comparison to Kārṣāpaṇa which has been referred to as substantial (*sabbsāragata*) in the *Aṅgavijjā*,[3] V. S. Agrawala interprets Nāṇaka to mean the copper money of the Kuṣāṇas, since it was Wema Kadphises who issued the most abundant currency of this type and caused it to be marked with the figure of Śiva or one of the emblems of the god.[4] He further draws our attention to the description of the *Aṅgavijjā* that Kārṣāpaṇa corresponds to the upper part of the body and Nāṇaka to the lower part from the view-point of prognosticating the fortune of a person and suggests on this basis that Nāṇaka was the name of the copper coins of the Kuṣāṇas, the weight standard of which varies from 31 to 270 gr. as recorded by R. B. Whitehead.[5] According to Agrawala, the heavy Nāṇaka coins of the Kuṣāṇas were struck as equal to the Tetradrachm weight standard of 268·8 gr. (67·2 being the weight of a Drachma), or to the double Stater weight of 266·4 gr. (133·2 being the weight of a Stater), or to the double Suvarṇa weight of about 290 gr. (146 or 144 gr. being the weight of a Suvarṇa). Another possibility is that it was of the heavy weight of the ancient Triṁśatka coins mentioned by Pāṇini (150 Ratis or 270 gr.).[6]

The *Aṅgavijjā* also mentions the Nāṇaka-Māṣaka[7] which has been identified by Agrawala with the Loha-Māṣaka of the *Kaṅkhāvitaraṇī* commentary of Buddhaghoṣa on the *Pātimokha*.[8] He says that, the standard weight of the Nāṇaka being uncertain, that of the Nāṇaka-Māṣaka remains a conjecture.[9] According to U. P. Shah, the Nāṇaka-Māṣaka stands for the smallest denomination of the copper coinage,

[1] Eṣā Nāṇaka-musikā makaśikā (*Mṛcchakaṭika*, of Śūdraka, ed. R. D. Karmarkar, Poona, 1950, I, i); *Aṅgavijjā*, ed. Punyavijaya, Banaras, 1957, 89.
[2] *JNSI* 1950, 197.
[3] *Aṅgavijjā*, 215.
[4] Ibid. 89, 94.
[5] *Catalogue of Coins in the Panjab Museum, Lahore.*
[6] Loc. cit.
[7] Ibid. 66.
[8] Ibid. 89.
[9] Loc. cit.

also called Māṣaka.[1] The Māṣaka, Ardha-Māṣaka, Kākaṇī, and Aḍḍhā are mentioned in the *Aṅgavijjā*.[2] It is interesting to note that all these are referred to in the *Arthaśāstra*, the last one having been called the Ardha-Kākaṇī.[3] This leads Agrawala to suggest that they were probably the names of the sub-multiples of the copper Nāṇaka and probably weighed 5 Ratis, 2·5 Ratis, 1·25 Ratis, and $\frac{5}{8}$ Ratis or 1·125 gr. respectively.[4]

No doubt the evidence of the *Aṅgavijjā* supports Agrawala's opinion that Nāṇaka was the copper money of the Kuṣāṇas, a large number of the coins bearing the figure of Śiva.[5] The fact, however, that Śiva's figure also forms one of the important devices of some of the gold coins of many of the Kuṣāṇa kings[6] renders it doubtful whether the statement of the commentator, referred to above, should be understood to mean Nāṇaka as exclusively of copper. As has been stated above, the expression simply means a coin with the figure of Śiva and the question of metal is not involved in it. J. N. Banerjea, on the other hand, states that Nāṇaka was the less popular name of the gold coins of the Kuṣāṇas, the more common name being Dīnāra.[7] But Nāṇaka denoted coins of copper and gold in the Kuṣāṇa period, if it was not a generic term for all kinds of coins, a sense in which, as will be seen, it has been found to be used in later times.[8] According to H. C. Raychaudhuri[9] and D. C. Sircar,[10] the name primarily denotes the Kuṣāṇa coins bearing the representation of the west Asian mother-goddess Nana. This seems probable from the fact that a commentator of the *Yājñavalkyasmṛti*, explains it as *Nāṇāṅka-Ṭaṅka*, i.e. a coin bearing the representation of Nāṇā.[11] Nāṇa figures

[1] *JNSI* 1952, 110.

[2] *Aṅgavijjā* 215.

[3] 'Pādājīvaṁ tāmrarūpaṁ Māṣakam = ardha-Māṣakaṁ Kākinim = ardha-Kākaṇīm = iti (*Arthaśāstra*, ed. R. Shamasastry, Mysore, 1919, ii, 12, Text, 84).

[4] *Aṅgavijjā* 94.

[5] For Śiva's figure (sometimes two-armed and sometimes four armed) on Kuṣāṇa copper coins see R. B. Whitehead, op. cit. pl. xvii. 36 (Wema Kadphises) pl. xviii. 106 (Kaṇiṣka) pl. xix. 151 (Huriṣka) and pl. xix. 216 and 223 (Vāsudeva).

[6] For Śiva's figure, sometimes two-armed and sometimes four-armed, on the gold coins of the Kuṣāṇas see Whitehead, op. cit., pl. xvii, 31 and 33 (Wema Kadphises), pl. xvii. 65 (Kaṇiṣka) and pl. xix. 209–12 (Vāsudeva). For Śiva's figure on the gold coin of Huviṣka see *A Comprehensive History of India* (vol. ii, 1957, ed. K. A. Nilakantasastri, pl. v. 13.

[7] *A Comprehensive History of India* ii, 795.

[8] The Kuṣāṇas are generally not supposed to have issued silver money. A few coins, which have been published so far, are either looked at with suspicion or an explanation is often sought for them. According to A. K. Narain, however, there are two silver coins of Huviṣka in the coin-cabinet of the State Museum of Berlin (*JNSI* 1960, 99–100).

[9] *Political History of Ancient India*, 1953, 475 note.

[10] *Indian Epigraphical Glossary*, 1966, 436.

[11] *A Comprehensive History of India* ii, 795.

as an important reverse device on a number of gold[1] and copper coins of the Kuṣāṇas.[2]

The *Yājñavalkyasmṛti* describes one who counterfeits coin as *Kuṭakṛt Nāṇakasya* and an examiner of coins as *Nāṇaka-parīkṣin*.[3] *Nāṇaka* and *Nāṇakaparīkṣā* have been used respectively in the sense of a coin and the testing of the genuineness of coins in the *Prabandhakośa* of Rājaśekharasūri (A.D. 1349) which uses the expression *Hema-Nāṇaka* for gold coins.[4] Kṣemakīrti, while commenting on a verse of the *Bṛhatkalpabhāṣya*, applies the adjectives *Tāmra*, *Rūpa*, and *Suvarṇa* to Nāṇaka to denote copper, silver, and gold coins respectively.[5] While mentioning the media of exchange in different regions, it uses the term Nāṇaka to denote coin in general and quotes the expression *Tāmramayaṁ Nāṇakam*, evidently to denote a copper coin.[6] Nāṇaka has also been used in the sense of money in the *Purātanaprabandhasaṅgraha* which mentions it while referring to the fact that the Kapardakas are the coins of Malwa.[7] The *Prabandhacintāmaṇi* of Merutuṅgasūri (A.D. 1305) also uses the word *Nāṇaka* in the generic sense of coin. It has the expression *Rūpya-Nāṇaka* apparently to mean silver coins. But what is stimulating in this

[1] For the representation of Nana on the gold coins of the Kuṣāṇas, see Whitehead, op. cit., pl. xvii. 66 (Kaṇiṣka), pl. xviii. 133 and 135 (Huviṣka). Coin no. 135 is of unique importance for, according to Whitehead, it bears the figures of both the deities Nana and Śiva on the reverse and the legend is NANA and OHPO. There is some interesting discussion on the legend OHPO. According to Whitehead the word is *Umeśa*, while D. C. Sircar takes it as *Bhaveśa* (*Select Inscriptions* i 1965 ed., 147 n. 6). C. D. Chatterjee (*Bulletin of the U.P. Historical Society*, 1957, 39, n. 2) takes the word to stand for *Īśa*; and, philologically, the prefixing of *O* to *eṣo*, according to him, 'is due to the phonetic phenomenon known as Indistinct Articulation which is specially to be noticed, when a Sanskrit word which is rather difficult to pronounce, is represented in a foreign tongue (J. Piele, *Philology* 32)'.

[2] For the representation of Nana on the Kuṣāṇa copper coins, see Whitehead, op. cit., xvii. 57 (Kaṇiṣka and pl. xix. 158 (Huviṣka). For discussion on Nana, see M. A. Stein, 'Zoroastrian Deities on Indo-Scythian Coins' *Indian Antiquary*, 1888, 98; B. N. Puri, 'Nana, the Mother Goddess in India and Western Asia', *Indian Culture* vii, 225–8; and 'Further Evidence on Goddess Nana as Mother Goddess Ambā', ibid. 499–493; C. D. Chatterjee, 'Some Unique Gold and Brass Coins of the Imperial Guptas', *Bulletin of the U.P. Historical Society*, 1957, 39 note; U. P. Shah, *Journal of the Oriental Institute*, Baroda iii, 67, n. 56.

[3] *Yājñavalkyasmṛti*, ed. Ganapati Sastri, Trivandrum, 1922–4, ii, 240–1.

[4] For *Nāṇakaparīkṣā*, see p. 59, l. 21, and for *Hema-Nāṇaka* see p. 20, l. 29 of the *Prabandhakośa*, ed. Jinavijaya, Santiniketan, 1935.

[5] Tāmrāmayaṁ vā Nāṇakam yad vyavahṛiyate, yathā Dakṣiṇāpathe Kākiṇi I Rūpa-mayaṁ vā Nāṇakaṁ bhavati, yathā Bhillamāle Drammaḥ I Pitaṁ nāmasuvarṇaṁ tan = mayaṁ vā Nāṇakam bhavati yathā Pūrva-deśe Dināraḥ I (*Bṛhatkalpabhāṣya*, ed. Punyavijaya, Bhavnagar, 1933–8, ii, 573; *JNSI* 1952, 109.

[6] Tāmra-mayaṁ vā yaṁ Nāṇagaṁ vavahāranti [*sic*] taṁ dijjanti, jahā Dakkhiṇāvahe Kāgiṇi (B. J. Sandesara, *Jaina Āgama Sāhitya māṁ Gujarāt*, 181, n. 3); *JNSI* 1952, 143. Nāṇaga is apparently the same as Nāṇaka.

[7] Kapardakā Mālavadeśiya-Nāṇakam (*Purātanaprabandhasaṅgraha*, ed. Jinavijaya, Calcutta, 1933, 21, l. 32).

connection is Merutuṅga's description of a class of coins as newly minted and as bearing the representation of a child lying under the four feet of a doe. Merutuṅga further states that the device was taken as an indication of the birth of a new king for the destruction of whom Ratneśvara sent his soldiers in all directions.[1] The Toḍā Raising inscription of the time of Asalema Sāhi (A.D. 1547) refers to the Mewar currency as Mevāḍyā Nāṇā.[2] Naṇā, same as Nāṇaka, is used here as a general name for coin in which sense it has also been taken in the *Pāiasaddamahaṇṇavo*.[3]

It is interesting to note that Nāṇaka is still used in the sense of money in the Marāṭhi, Gujarātī, and Rājasthānī languages. A Rājasthānī proverb states that a blind man also can get married if he is moneyed, and Naṇa is used here for money.[4]

[1] Tasminn = avasare devyā Mahālakṣmyāḥ
puratas = ṭaṅka-śālāyāṁ hariṇyās = caturṇāṁ
pādānām = adhaḥ śiśurūpaṁ Nāṇakaṁ nūtanaṁ
sañjāyamānam = ākarṇya
kvacinnavīno nṛpa utpanna iti prasūtayā vārttayā śrī-Ratneśvaraḥ sainyāni pratidiśaṁ taṁ śiśuṁ viśasituṁ prāhiṇot (*Prabandhacintāmaṇi*, ed. Jinaviỿaya, Santiniketan, 1933, 110, ll. 2–4).

[2] Line 18 of the inscription (*Epigraphia Indica* xxx, 197).

[3] Pandit Hargovinddas Trikamchand Sheth, *Pāiasaddamahaṇṇavo* 477.

[4] *Jaina Siddhānta Bhāskara* (Hindi) xxi, 10. In a Kharoṣṭhī inscription discovered by A. Stein on a wall-painting in an ancient shrine of Chinese Turkestan, Boyer read: Titasa esā ghali hastakrica[bhamma] ka 3. 100 (*Serindia* i, 530) and translated it 'This fresco is (the work) of Titus (Tita) who had received 300 bhamakas (for it)'. According to Stein, *bhamaka* is Sanskrit *bharman* meaning both 'a coin' as well as 'gold'. The two letters preceding *ka* are not very distinct in the photograph of the inscription, and R. C. Agrawala thinks that they may be *Nana* and the whole word *Nāṇaka* (*JNSI* 1954, 229–30).

This paper forms a part of the author's thesis on 'Foreign Influence on Indian Coin Names' approved for the degree of Doctor of Philosophy by the University of Calcutta.

A NUMISMATIC APPROACH TO THE ICONOGRAPHY OF SEVERAL GONZAGAN FRESCO CYCLES

By W. MCALLISTER JOHNSON

IT is now almost seventy years since the foundations were laid for the iconographical exegesis of early Renaissance medals in relation to classical and pseudo-classical prototypes, *imprese*, and hieroglyphics.[1] These foundations have by and large remained unbuilt upon, and not the least of the reasons for this is the close adherence of the Renaissance to one aspect of classical civilization: the respect for generalized representational formulae and the dense and often thundering banality of legends. The art historian's methodological circle of 'interpreting by that which *needs* to be interpreted in a way to make sense' is hardly likely to endear him to historians, archaeologists, and numismatists alike who feel, with some justification, that many or all proper historical controls may be ignored for the sake of an ingenious hypothesis.

This cycle none the less should rest upon a sound and, whenever possible, a documented knowledge of what was possible at a given time and place. When errors of transmission or comprehension occur, one should be able to trace the procedure to a given circumstance within this milieu. It is thus assumed that not all traces of the essential links have perished when these are of a substantive rather than a statistical nature.

One control factor consistently comes to the rescue of the student of Renaissance medals, the classical or contemporary literary sources from which the legends are exerpted and which alone provide the original context properly situating the quotation or derivation thereof.[2] The source need not be printed and may exist in manuscript only, but once isolated no further ambiguity of intent is admissible even

[1] J. von Schlosser, 'Die ältesten Medaillen und die Antike', *Jahrbuch der kunsthistorischen Sammlungen des allerhöchsten Kaiserhauses* xviii (1897), 64–108; K. Giehlow, 'Die Hieroglyphenkunde des Humanismus in der Allegorie der Renaissance, besonders der Ehrenpforte Kaisers Maximilian', ibid. xxxii (1915), 1–229; L. Volkmann, *Bilderschriften der Renaissance. Hieroglyphik und Emblematik in ihren Beziehungen und Fortwirkungen* (Leipzig, 1923).

[2] Cf. my 'A "Biface" Medal of Henry II?' *Journal of the Warburg and Courtauld Institutes* xxx (1967), 403, n. 17.

if the accompanying image is itself ambivalent. In this light I would submit as a case study two important decorative cycles in Mantua created for Federico II Gonzaga by Raphael's most brilliant pupil and artistic heir, Giulio Romano.[1] These are the Palazzo del Tè (1526–34) and the Appartamento di Troia in the Palazzo Ducale (1536–9).[2]

We begin in the Appartamento's Sala delle Teste where the vault bears an enthroned Jove accompanied by a putto and banderolle with the inscription REGES IN IPSOS IMPERIVM EST IOVIS.[3] This Professor Hartt mistranslated as 'he indeed bears command among these rulers' on the assumption that reference was made to the *eleven* named historical rulers whose now-vanished busts once decorated the twelve wall roundels. Within the vast Appartamento we have a parallel to the adjacent Gabinetto dei Cesari with its eleven emperor portraits by Titian—the twelfth, as we now know, being installed in the Camerino dei Falconi because of insufficient space.[4] Yet none of this escapes the realm of allusive correlation unless we recall that the entire Appartamento was decorated after Federico Gonzaga's reception of the Emperor Charles V on 2 April 1530 and his subsequent elevation as first duke of Mantua on the 8th following.

Alessandro Magnaguti was fortunate enough to note that Possevino documented in 1628 the existence of a medal struck in gold and silver for the investiture of Gian Francesco I Gonzaga as first marquess of Mantua on 22 September 1433.[5] This bore an image on the reverse of 'Caesar victoria coronatus laureamque manu gestans pluribusque adorantibus majestatem velut poscentibus offert' with the precise legend as the Jove of the Sala delle Teste, which would further complete the series of illustrious 'modern' Caesars by the first bearer of a title continuously employed by successive members of an epithet-hungry dynasty. Since the original title had been granted by the Emperor Sigismund, the parallel was reinforced through the granting of an even more important one to Federico as fifth marquess by the Emperor Charles V.

This in turn would account for the appearance of certain motifs in the lowermost register of the double frieze (traditionally called the

[1] The standard monographic study is that of F. Hartt, *Giulio Romano* (New Haven, 1958).
[2] Hartt, op. cit. 105 ff. and 162 ff.
[3] Ibid. 178 f. and fig. 384.
[4] E. Verheyen, 'Jacopo Strada's Mantuan Drawings of 1567–1568', *Art Bulletin* xlix (1967), 66.
[5] A. Magnaguti, *Le medaglie dei Gonzaga* (Rome, 1965), cat. 7.

triumph of the Emperor Sigismund since its engraving in 1680) of the Sala degli Stucchi in the Palazzo del Tè.[1] Whether executed in ordinary homage on the occasion of Charles's first visit to Mantua in 1530 or as retrospective thanksgiving immediately thereafter until the second visit in 1532, one notes an equestrian Caesar minus the unmistakable Hapsburg profile followed by a shield-bearer with the eagle *bifrons*. This occurs precisely above the doorway leading to the Sala di Cesare and thence to the Sala dei Giganti. We find in the forefront of the procession, at the north-west corner opposite the window wall, yet another shield-bearer with the four eagles of the Gonzagas—surely a discreet testimony to the rising fortunes of the Mantuan dynasty as a result of imperial favours.

Keeping in mind the orientation of these motifs, we may then return to the inscription of the Sala delle Teste which Magnaguti realized was taken from Horace, *Carmina* iii. 1. The full import of the text comes only through the reading of lines 5–8 inclusive:

> Regum timendorum in proprios greges,
> Reges in ipsos imperiumst Iovis,
> Clari Giganteo triumpho,
> Cuncta supercilio moventis.

The suffocatingly paternal sentiments there expressed are perhaps more benignly stated in Ovid, *Meta.* i, 204–5, as

> Nec tibi grata minus pietas, Auguste, tuorum est
> Quam fuit illa Ioui

and these indeed provide an excellent example of the Renaissance conflation of secular and divine authority in terms literal and figurative. Certainly it is a reading differing substantively in emphasis from that previously offered by a single line, and one which further substantiates the derived Statius quotation written on the very walls of the Sala dei Giganti.[2] Thus are irrefutably linked the country villa which is the Tè and the residence of State which is the Palazzo Ducale.

Nor, in conclusion, is this numismatic 'clue' particularly unexpected when one considers the early development and extreme sophistication of this medium in northern Italy. We have merely another indication of the far-ranging significance of numismatics for much of the dynastic art of the Renaissance wherein there is no conscious or willed distinction between monumental ensembles and

[1] Hartt, op. cit. 147–9. [2] Ibid. 157, n. 6.

the so-called 'minor' arts. Since the expression of the identical *concetto* must be the foremost concern, the passage from one to the other medium and scale is easily effected. Hence it is perhaps not merely fortuitous that the commemorative medal by Leone Leoni for the Battle of Mühlberg (24 April 1547) shows a reverse with Jupiter and the Giants.[1] This decisive victory over the protestant princes of Germany marked the final consolidation of the empire and a renown that would vanish only with the Defence of Metz.[2] The reverse legend DISCITE IVSTITIAM MONITI bears witness to the weakening of the usual humanistic associations with the Gigantomachy that ultimately permitted a transition to the banal correlations of 'art politique' later on in the century.[3] In any case, the medal or the frescoes alone would be insufficient to stand alone in an exegesis; taken together they are mutually reinforcing and thus bring this methodological discussion to a close.

[1] G. F. Hill and G. Pollard, *Renaissance Medals from the Samuel H. Kress Collection at the National Gallery of Art* [Washington], 1967, cat. 426.

[2] Cf. my 'Numismatic Propaganda in Renaissance France', *Art Quarterly* xxxi (1968), 123–53.

[3] See F. Joukovsky-Micha, 'La Guerre des dieux et des géants chez les poètes français du XVI[e] siècle (1500–1585)', *Bibliothèque d'Humanisme et Renaissance* xxix (1967), 55–92.

NOTES

A FALSE DENARIUS OF CLAUDIUS I

By D. J. MACDONALD

In the first volume of *Coins of the Roman Empire in the British Museum* Harold Mattingly described as follows a previously unpublished and apparently unique denarius of Claudius:[1]

Fig. 1.

No.	*Wt.*	*Metal size axis*	*Obverse*	*Reverse*
55	53·5 *3·47*	AR↓·8	Head of Claudius, laureate, r. TI CLAVD CAESAR· AVG·P·M·TR·P· $\overline{\text{VIIII}}$·IMP·$\overline{\text{XVI}}$ starting low r., outwardly.	Victory, draped, advancing l., holding wreath in r. hand and palm in l. VICTORIA· PR l. up, r. down.

55. Feuardent, 1920. Double-struck. The *rev.* belongs to the year A.D. 68; cf. the *rev.* type of Galba. The B.M. specimen is probably a normal coin of Claudius, the *rev.* of which was re-struck in that year; faint traces of original legend PACI AVGVSTAE can be seen.

[1] *BMCRE* i, 172, no. 55.

Recently a second reported specimen of this type has been acquired by the British Museum. It is struck in silver from the same dies as the first. There are no indications of overstriking, but the obverse is double-struck. The weight of the coin is only 3·25 gm., although this is at least partly explained by signs of filing on the edge. Die alignment is ↑, resembling some conventional denarii of Claudius. Die coincidence is poor, however, almost 4 mm. from a true match. The coin has no reliable provenance.

Mattingly's explanation that a normal denarius of Claudius was overstruck on the reverse during the Civil Wars must be rejected. Neither coin is damaged on the obverse, and it is not apparent how only one side of a coin can be overstruck without severe damage to the other. I can find no indication of overstriking on either coin, despite Mattingly's assertion that the initial specimen is overstruck and traces of PACI AVGVSTAE can be seen. There is evidence of double-striking; thus, it is possible that a nearly obliterated impression of drapery near the edge of the coin was mistaken for a trace of the word PACI. Moreover, two specimens from the same obverse and reverse dies imply that the dies were used concurrently—not nineteen years apart.

If it is admitted that the two dies were used concurrently, there are grave iconographic objections to the authenticity of these coins. The reverse legend is contrary to the coinage policy of the Claudian principate, which ignored the *populus Romanus*. Similarly, the obverse is inappropriate for the period of the Civil Wars when Claudius was neither remembered with reverence nor honoured by any recognized issue. The legend is unrelated to the events of A.D. 68–9, and the possibility of an obverse die of Claudius surviving to be combined with a reverse die of the Civil War period is unlikely in view of other evidence, especially stylistic.

The style of the obverse is peculiar. While not beyond the limits possible for a genuine denarius of Claudius, the bust seems too round and highly modelled. The hair is more finely drawn than is to be expected. The style of the reverse is still less convincing. Not only are there no close parallels among the issues of Claudius, but also the coins of A.D. 68–9 are very different. On VICTORIA PR issues, Victory is always shown standing on a globe and holding wreath and palm, or inscribing a shield.[1] Issues with Victory carrying wreath

[1] Victory on globe, *BMCRE* i, 292 n., 293, 304 n., 315 f., 342 f., 349, 352 n., 400. Victory inscribing shield, *BMCRE* i, 350.

and palm but not standing on a globe have legends other than VICTORIA PR.[1] In every case, the figure of Victory is executed in a fashion unlike the die in question. The obverse and reverse fields of the two reported specimens exhibit short raised striations, the result of scratches on the die faces. This is not a feature of conventional denarii.

The two British Museum coins are struck on poorly formed flans which have spread unevenly and cracked at the edge at several points. The excellent fabric of normal denarii of Claudius and the generally neat fabric of the Civil War issues are in distinct contrast to this. Both specimens in question are multiple-struck, and neither is well struck, while the denarii of Claudius and the issues of the Civil Wars are generally good impressions. The weight of the two coins is low, though filing on the second specimen accounts for some loss. Finally, the die coincidence is less regular than is normal for genuine coins.

In view of these irregularities and in absence of any real proof of authenticity, it seems imperative to regard these coins as forgeries. Questions remain unanswered. Who manufactured the coins? Why was excellent engraving combined with careless die finishing, striking, and choice of types? Finally, why have only two specimens appeared?

[1] *BMCRE* i, 301, 325 f., 359 n., 360 f., 367, 374 n.

ANALYSES OF SOME EARLY IMPERIAL ALEXANDRIAN TETRADRACHMS

By RICHARD REECE

THE fourth report on coin analyses from a school laboratory (*NC* 1968, 111) dealt with denarii of the early third century. This report, which will be the last of this series, deals with twenty Alexandrian tetradrachms of the Emperors Claudius, Nero, and Vespasian.

LIST OF COINS AND RESULTS OF ANALYSIS

No.	*Emperor*	*Year*	*Date A.D.*	BMC *ref.*	*Weight (gm.)*	*Per cent Silver* (*a*) *Unfiled*	(*b*) *Filed*
1	Claudius	2	42	65	13·81	16·9	20·5
2	,,	2	42	69	13·94	31·3	25·4
3	,,	3	43	70	13·38	32·6	23·7
4	,,	3	43	70	13·27	33·6	26·3
5	,,	4	44	73	13·17	29·5	27·6
6	,,	5	45	74	13·98	17·6	24·2
7	,,	6	46	75	13·61	20·3	26·1
8	Nero	13	66	114	13·25	22·8	21·7
9	,,	13	66	114	13·40	18·0	17·8
10	,,	13	66	140	13·77	..	18·0
11	,,	13	66	140	13·62	..	18·4
12	,,	13	66	..	13·52	..	17·0
13	,,	13	66	..	13·02	23·0	16·5
14	,,	14	67	144	13·86	23·2	17·5
15	,,	14	67	144	13·45	..	18·1
16	,,	14	67	133	13·51	..	17·5
17	Vespasian	1	69	242	13·30	25·2	17·0
18	,,	1	69	229	13·17	17·5	17·6
19	,,	1	69	234	12·97	21·2	17·1
20	,,	2	70	236	12·77	22·7	16·9

The coins were weighed, cut into quarters with a hack-saw, and then filed down until no trace of the surface layers remained. At this stage the metal looked like pure copper. The silver in the quarters was determined volumetrically using thiocyanate and gravimetrically as the chloride to give consistent results. If a further quarter remained the silver was determined with the surface layers intact. The results show the change in composition due to surface action.

The silver content of the coins fits in well to Caley's valuable collection of past analyses and a more recent set of figures (*Centennial Publication of the American Numismatic Society* 167) and in the case of Nero and Vespasian there is little comment to make. The values

also agree with the other set of figures given by Schwarz (*Chronique d'Égypte* xli, 373), a reference to which Mr. M. Crawford kindly led me. The values for Claudius are high compared with the quoted values although both writers mention, without comment, the value of 251 parts of silver per 1,000 quoted with no details in *Wiener Numismatische Monatschafte* iii, *Miscellen*, 68. Caley's value of 23·04 per cent silver suggests that our present values centring on 25 per cent may not be far wrong, but there is also the possibility of a similar error in 1867 and 1967.

My thanks are due to the British Museum for providing the coins for analysis and to my first-year sixth-form chemists at St. George's School, Harpenden: Barbara Burtenshaw, Ann Collyer, John Coutts, Nicholas Gadsby, Tim Gowland, Charles Morris, Sarah Oswald, Stuart Robertson, Pam Smith, Neil Munro, Diana Strickland, and Ian Smith, who carried out the analyses.

BIBLIOGRAPHY OF ARTICLES FROM NON-NUMISMATIC JOURNALS

By PETER A. CLAYTON

In this day of multiplying periodicals and the consequent multiplicity of references it is nevertheless often difficult to find a place for a given subject in what is, to the would-be contributor, the most relevant periodical. Most disciplines—numismatics is not alone here—suffer from this, and many interesting, often important, articles are consequently lost to a number of people to whom they would be of real interest. The practice of browsing and stumbling across items of pertinent interest to one's individual field is a luxury denied to the majority. The following bibliography, which is by no means claimed as definitive, is offered of some of the more recent numismatic articles appearing in out-of-the-way periodicals which one would not necessarily connect with numismatics. The arrangement is under the very broad headings of Greek, Roman, Medieval, and Modern, followed by an alphabetical order of authors. Short annotations are added where deemed necessary.[1]

GREEK

Allen, D. F. Iron Age currency bars in Britain. *Proc. Prehistoric Society* xxxiii (1967), 307–35.

Atlan, S. Die in Side gepraegten Münzen mit Alexandertypen. *Belleten Türk Tarih Kurumu* xxxi, no. 124 (1967), 497–511.

Ben-David, A. The Talmud was right! The weight of the Biblical shequel. *Palestine Exploration Quarterly* c (1968), 145–7.

The Biblical shequel of 11·75 gm. is proved virtually correct by the examination of recently excavated stone shequel weights.

Bond, R. C., and Swales, J. M. Surface finds of coins from the city of the Euesperides. *Libya Antiqua* ii (1965), 91–101.

Clayton, P. A. The coins from Tell Rifa'at. *Iraq* xxix (1967), 143–54.

Surface finds from the second century B.C. to the fourteenth century A.D.

[1] I wish to express my thanks to the Executive Committee of the Society of Antiquaries of London for allowing and facilitating the abstraction of the information from their periodical holdings as catalogued by Mrs. J. F. Clayton.

Cutroni, A. T. Ricerche sulla monetazione punica in Sicilia. *Kokalos* xiii (1967), 73–87.

Göbl, R. Eine Neuerworbene Sammlung mittelasiatischer Münzen. *Jahrbuch Bernisches Historisches Museum in Bern* xlv–xlvi (1965–6), 185–223.

Guadan, A. M. de. Dos nuevas leyendas monetales en dracmas de imitación emporitana. Los tigirsenos. *Ampurias* xxviii (1966), 107–22.

Johnston, A. E. M. The earliest preserved Greek map: a new Ionian coin type. *Journal of Hellenic Studies* lxxxvii (1967), 86–94.

Llobregat, E. A. Un hallazgo de moneda púnica en la provincia de Alicante. *Caesaraugusta* xxvii–xxviii (1966), 71–6.

Majurel, R. Deux nouveaux trésors de Lattes (Hérault); oboles Massaliotes et monnaies à la croix. *Ogam* xix, fasc. 5–6 (1967), 397–433.

Marion, J. Note sur la contribution de la numismatique à la connaisance de la Maurétanie tingitane. *Antiquités Africaines* i (1967), 99–118.

Masson, O. Notes de numismatique chypriote. *Svenska Institutet I Athen* xiv (1968), 111–18.

Price, M. J. Coins from some deposits in the South Stoa at Corinth. *Hesperia* xxxvi, no. 4 (1967), 348–88.

Sperber, D. Catalogue of coins in the Jewish Museum (London). *Palestine Exploration Quarterly* xcix (1967), 106–13.

Valls, R. M. La circulación monetaria ibérica. *Boletín del Seminario de Estudios de Arte y Arqueologia* xxxii (1966), 207–366.

ROMAN

Bastien, P. Théorie du monnayage de bronze de Postume. *Bulletin de la société nationale des Antiquaires de France*, 1966, 109–13.

Beckensall, S. G. The excavation of Money Mound. *Sussex Archaeological Collections* cv (1967), 13–30.

Contains list of Roman coins found on the site.

Boon, G. C. The Penard Roman imperial hoard: an interim report and list of Roman hoards in Wales. *Bulletin of the Board of Celtic Studies* xxii, pt. 111 (1967), 291–310.

Crawford, M. H. A Roman Republican hoard from Capalbio. *Papers of the British School at Rome* xxxv, n.s. xxii (1967), 1–3.

Dolley, R. H. M., Nesbitt, N., and Rebbeck, D. Three unpublished nineteenth-century Irish finds of coins. *Ulster Journal of Archaeology*, ser. 3, xxx (1967), 89–94.

A hoard of Roman, 1839; a hoard of Henry VIII, Philip and Mary, and Edward VI, 1840; and a hoard of Edward IV, 1840.

—— Two numismatic notes. 1. Some Hiberno-Norse coins of Dublin recently discovered on the Baltic island of Gotland. 2. The mythical Roman coin-hoard from Tara. *Journal of the Royal Society of Antiquaries of Ireland* xcviii, pt. 1 (1968), 57–65.

DOPPLER, H. Die Münzen des Grabungen Windisch-Breite 1966, Windisch-Scheuerhof und Windisch-Friedhoferweiterung 1967. *Gesellschaft Pro Vindonissa 1967*, 51–62.

GREEN, B., and CLOUGH, T. H. McK. The Mattishall hoard of Roman silver coins. *Norfolk Archaeology* xxxiv, pt. 3 (1968), 272–8.

GUARDUCCI, M. Una moneta nella necropoli vaticana. *Atti della Pontificia Accademia Romana di Archeologia* (*serie III*), xxxix (1966–7), 135–43.

KAPOSSY, B. Rara, Unica, Inedita 1: Augustus-Geta. *Jahrbuch Bernisches Historisches Museum in Bern* xlv–xlvi (1965–6), 225–48.

LALLEMAND, J. Le Trésor de Hemptinne: bronzes ('aes' 2) de Gratien à Magnus Maximus. *Annales de la Société Archéologique de Namur* liv (1967–8), 5–60.

—— Le Trésor de Lierre: bronzes jusqu'à Arcadius–Honorius. Supplément. *Helinium* viii (1968), 22–41.

LUCE, T. J. Political propaganda on Roman Republican coins: circa 92–82 B.C. *American Journal of Archaeology* lxxii, no. 1 (1968), 25–39.

MATTINGLY, H. B. A hoard of 'barbarous radiates' from Goring-on-Sea. *Sussex Archaeological Collections* cv (1967), 56–61.

MITREA, B., and ZHARAIA, E. La Découverte monétaire d'Oboroceni (district de Pascani, region de Jassy) et son importance historique. *Arheologia Moldovei* v (1967), 81–121.

Roman coins of the reigns of Nero, Antoninus Pius, and Septimius Severus.

—— Découvertes récentes et plus anciennes de monnaies antiques et byzantines en Roumanie. *Dacia* xi (1967), 377–93.

RUTH, B. Der kaiserzeitliche Münzfund von Schloss Dornhof, 1964. (Galba–Hadrian). *Carinthia I, 157*, vol. 3–4 (1967), 500–16.

VASIĆ, M. R. Le Dépôt de monnaies de Jablanica. *Starinar* xviii (1967), 63–82.

The 1960–1 find of 2211 Roman coins from Marcus Aurelius to Valerian and Gallienus. Now in the National Museum, Belgrade.

WEILLER, R. Un Trésor d'Antoniniens découvert à Burmerange (Grand-Duché de Luxembourg). *Helinium* viii, no. 2 (1968), 131–48.

MEDIEVAL

COMMENTATIONES de nummis saeculorum IX–XI in Suecia repertis. Pars secunda. Kungl. *Vitterhets Historie och Antikvitets Akademiens Handlingar* xix (1968).

CASTELIN, K. Grossus pragensis: der Prager Groschen und seine Teilstücke. *Arbeits- und Forschungsberichte zur Sächsischen Bondendenkmalpflege* xvi/xvii (1967), 665–713.

DANNHEIMER, H. Frühmittelalterlicher Brakteatenschmuch vom Goldberg im Ries, Markung Goldburghausen. (Kr. Aalen.) *Fundeberichte aus Schwaben* xviii, pt. 1 (1967), 199–207.

Dolley, R. H. M., and Cormack, W. F. A Hiberno-Norse penny of Dublin found in Wigtownshire. *Trans. of the Dumfriesshire and Galloway Natural History and Antiquarian Society*, ser. 3, xliv (1967), 122–5.

Dolley, R. H. M., Nesbitt, N., and Rebbeck, D. Three unpublished nineteenth-century Irish finds of coins. *Ulster Journal of Archaeology*, ser. 3, xxx (1967), 89–94.

A hoard of Roman, 1839; a hoard of Henry VIII, Philip and Mary, and Edward VI, 1840; and a hoard of Edward IV, 1840.

Dolley, R. H. M. The Irish mints of Edward I in the light of the coin-hoards from Ireland and Great Britain. *Proc. of the Royal Irish Academy* lxvi, sec. C, no. 3 (1968), 297 P.

Dolley, R. H. M. Two numismatic notes. 1. Some Hiberno-Norse coins of Dublin recently discovered on the Baltic island of Gotland. 2. The mythical Roman coin-hoard from Tara. *Journal of the Royal Society of Antiquaries of Ireland* xcviii pt. 1 (1968), 57–65.

Fritsch, W. Der Münzfund von St. Stefan im Lavanttal. *Carinthia 1, 157*, vol. 3–4 (1967), 531–41.

Hoard of pfennigs of the twelfth–thirteenth centuries.

Gedai, I. Der Münzfund von Gyönk aus dem XIII. Jahrhundert. *Folia Archaeologica* (Budapest) xviii (1966–7), 139–49.

Gerasimov, T. Nouvelles monnaies de Constantin Assen (1257–1277). *Arheologija* (*Bulgarska Akademija na Naukite Arheologičskija Institut i Muzei*) iii (1967), 26–9.

—— Monnaies du despote Dobrotica, seigneur souverain de la région de Carvona. *Arheologija* x, no. 3 (1968), 10–12.

Haupt, W. Kleine sächsischen Münzkunde. *Arbeits- und Forschungsberichte zur sächsischen Bodendenkmalpflege* v (1968).

A survey of the coinage of Saxony from the twelfth to the early twentieth century.

Huszár, L. Die Münze von Visegrád im Mittelalter. *Folia Archaeologica* (Budapest) xviii (1966–7), 195–204.

Iliescu, O., and Foit, G. Un trésor de monnaies moldaves de la première moitié du XV^e siècle découvert à Suceava. *Arheologia Moldovei* v (1967), 145–67.

Stewart, I. H. Some Scottish ceremonial coins. *Proc. of the Society of Antiquaries of Scotland* xcviii (1964–5 and 1965–6), 254–75.

MODERN

Anghel, G. Le trésor monétaire du XVII^e siècle découvert à Răscruci. *Apulum* (*Acta Musei Apulensis*) vi (1967), 393–417.

Berry, G. New light on the seventeenth-century token issuers of Chepping Wycombe. *Records of Buckinghamshire* xviii, pt. 2 (1967), 150–63.

CHIRILĂ, E., and PINTEA, V. Der Münzschatz von Iacobeni, XV–XVI Jh. *Apulum* (*Acta Musei Apulensis*) vi (1967), 289–307.

—— —— Der Münzschatz von Enciu, XV–XVI Jh. *Apulum* (*Acta Musei Apulensis*) vi (1967), 323–37.

GREFNER, O. Der Münzenhort von Radna (Region Banat) aus dem XVI. Jahrhundert. *Apulum* (*Acta Musei Apulensis*) vi (1967), 347–54.

LLUIS Y NAVAS, J. Las ideas de Mariana sobre la historia e inconvenientes de las alteraciones monetarias. *Caesaraugusta* xxvii–xxviii (1966), 127–47.

Economic remedies proposed by the seventeenth-century Jesuit, Mariana, to save Spain's devalued currency and crumbling economy.

TAYLOR, R. F. The St. Annes hoard and other Civil War coin hoards in Lancashire. *Trans. of the Historic Society of Lancashire and Cheshire* cxviii (1966), 39–50.

WENT, A. E. J. The cardboard tokens of Malcomson Brothers of Portlaw, Co. Waterford. *Journal of the Royal Society of Antiquaries of Ireland* xcviii, pt. 1 (1968), 75–8.

TECHNICAL AND SCIENTIFIC

GORDUS, A. A. Quantitative non-destructive neutron activation analysis of silver in coins. *Archaeometry* x (1967), 78–86.

REVIEWS

The Agrinion Hoard. By MARGARET THOMPSON (*Numismatic Notes and Monographs* no. 159.) Pp. 130, pls. 56. American Numismatic Society, New York, 1967.

MARGARET THOMPSON's publication is a model of its kind. After her magnificent study of the whole corpus of Athenian New Style material she has given us a detailed, amply illustrated monograph on one of the most interesting of all hoards containing New Style issues. It was found at or near Agrinion (western Aetolia) in 1959 and three years later acquired by the American Numismatic Society. There are 1,340 silver coins in all—only a handful escaped—and the great bulk is composed of issues of the Achaean League (834 hemidrachms) and Megalopolis (151). But there are three other important nuclei—97 hemidrachms of Aetolia, 39 Athenian New Style tetradrachms, and 39 Roman denarii. The hoard's interest thus far exceeds that of any normal second-century Peloponnesian deposit. It has certainly not been adulterated in modern times and Margaret Thompson rightly emphasizes that it represents currency taken out of circulation at one time—not the fusion in ancient times of two or more deposits of different date (pp. 2 and 107 ff.).

She fully exploits the valuable new evidence for the federal currency of Aetolia. The great bulk of its hemidrachm coinage is represented here. These Agrinion issues at least belong to the second century and can be divided into three clear stylistic groups. Comparison with the Achaean material shows that the last group was issued in the late 150s—welcome confirmation of the continued existence of the Aetolian League after 167. Group I is plausibly connected with the war against Rome from 192 to 189, Group II with the Third Macedonian War, and Group III with counteraction in face of Achaean encroachment in central Greece—in particular the annexation of Heracleia Trachinia. The League coinage was evidently not continuous, but concentrated at periods of unusual activity.

The results for the Achaean League are much the same. Margaret Thompson demonstrates convincingly that the inscribed civic coinage (and there is very little before that) begins only in the second century, the issues of Elis and Messene being among the first. Basically, she argues, the League coinage in the hoard was struck in four batches—c. 195–188, the 180s, 175–168, and c. 160–150. The 576 hemidrachms of the first three groups (her Early Period) include virtually every known issue, but it is far otherwise with the Late Period, where many individual issues and civic series are missing. In particular—as her dating implies—the hoard lacks almost all the coinage of the fateful years c. 150–146. There is none of those

extensive, degenerate issues of Patras, Dyme, Sparta, and Elis that bulk large in the hoards from western Greece, Caserta, and Olympia. These bear progressively the signs of emergency, wartime minting, and, with Rome closing in relentlessly, it is not so surprising that they should have failed to cross the Corinthian Gulf in any significant numbers. It was rather different earlier. 'The late Achaean League money of the Agrinion Hoard', Margaret Thompson fairly surmises, 'may well have moved north with the men who annexed Heracleia between 155 and 150 B.C.' (p. 98).

Another 985 hemidrachms were included in her detailed study of the Agrinion material—an impressive, though hardly definitive corpus. With such typical diligence Margaret Thompson has much increased the value of this study and our consequent debt to her. I would note just a few of her stimulating observations. She convincingly attributes to Patras the extensive issues of her Early Period, which were formerly assigned either to Mantineia or Troezen (trident) or to Dyme (dolphin). Similarly she shows good reason for identifying the issues with M–ME without symbols as the early League coinage of Messene. She also raises the interesting question whether the perplexingly frequent small civic issues were not really struck 'centrally' at one or other of the main League mints—the civic badge would then merely indicate the source from which the monetary contribution came. This is possible, though there is very little direct evidence yet (see her p. 101 for the die-link between Elis and Patras). Only twenty-two, however, out of some sixty member states ever sign the silver coinage, but it is probable enough that the League never had any system of regular financial contributions and that many communities provided men or supplies at need instead of cash.

The abundant issues of 'Arcadian' hemidrachms from Megalopolis clearly belong to the second century. This was a local series closely comparable with the autonomous silver that Sicyon, Argos, and Corinth continued to strike as members of the League. All four cities also sign small federal issues. The relationship between these autonomous and federal coinages deserves further study, which may be more profitable when we have the promised publication by Margildis Schlüter of the recent important hoard from Olympia. Meanwhile *The Agrinion Hoard* provides the essential groundwork for tackling this and other fascinating problems. On pp. 110–17 Margaret Thompson neatly tabulates the hoard evidence for the whole Achaean League civic series as well as her chronological arrangement of the Achaean and 'Arcadian' issues found at Agrinion. Dengate's ordering of the Megalopolis hemidrachms (*ANSMN* 1967, 57–106) is well borne out. Significantly the final group with ΜΕΓ on the reverse is missing—another wartime issue from 148–146 which hardly crossed the Corinthian Gulf.

It is simply not possible to date the hoard's burial c. 146 and explain the absence of the final Achaean and 'Arcadian' issues by stressing the

slow communications with remote Aetolia. This hoard shows that they never really arrived at all. Margaret Thompson clearly wanted a c. 146 dating at first (*NC* 1962, 320 ff.) and the very fine condition of all ten late Achaean hemidrachms of Corinth gave her strong support. But she seems very properly to have allowed herself to be persuaded by Rudi Thomsen and Michael Crawford, who contribute an admirable Appendix on the denarii (pp. 118–30). They show conclusively that the latest denarii cannot be any earlier than 135. Margaret Thompson still writes as one wishing that it were not so (pp. 107 ff.). The conclusion is inescapable and Charles Hersh's heroic attempt to defy it (*NC* 1966, 71–93) must be judged a failure for reasons which will appear later. The condition of the Corinthian coins is clearly anomalous.

Though she has lost one of her arguments from relative wear, Margaret Thompson continues to believe that 'the Agrinion Hoard strongly supports the present chronology of the New Style coinage' (p. 108). By this, of course, she means her controversial unbroken, annual arrangement from a starting-point in 196. Some years ago D. M. Lewis launched a devastating attack on her system (*NC* 1962, 275–300)—on grounds of hoard evidence, prosopography, and historical probability. She replied promptly (ibid. 301–33), but many must have remained unconvinced. It is thus essential to weigh the rival chronologies and attempt to reach as objective a dating as possible for the issues included in this hoard. This I now propose to do. Only after that can we properly assess her argument from the relative condition of the Athenian issues and the denarii (p. 108, n. 136).

The crux of her New Style chronology is her dating of the issues of Aristion/Philon (drinking Pegasos), Apellikon/Gorgias (griffin), and King Mithradates/Aristion (star between crescents)—129/8, 121/0, and c. 121 respectively. Historically this is very hard to accept. It would mean that both Aristion and Apellikon of Teos had been in Pontic service for close on forty years before the crisis of 88/7, when they were the foremost supporters in Athens of Mithradates VI. Moreover the drinking Pegasos was not simply a Pontic symbol—in fact it first appears on the dated tetradrachms of Mithradates VI in 96 and it could well represent the king's personal signet. Finally the hoard evidence for these issues is overwhelmingly against Margaret Thompson, as Lewis sufficiently showed (pp. 280 ff.). In particular two Attic hoards can hardly be discounted by any ingenuity. The Piraeus and Dipylon deposits both associate very fine or mint specimens of Apellikon/Gorgias with mint coins of Mithradates VI dated 88: the latter adds four FDC coins of the King Mithradates issue. Lewis's 88/7 and 87 dating must be right. Evidence for the bronze coinage amply confirms this. The issue with the symbol 'star between crescents' is not found in any second-century context, but was readily available in fresh condition at the time of the Sullan sack (see M. J. Price, *NC* 1964, 21–36). A small corroded silver hoard from Delos should also not be overlooked

in this context (Noe 312: M. Thompson, *Athens*, 320). The latest of the six Athenian coins are dated 128/7 and 127/6 on the Thompson scheme. They are accompanied by seven tetradrachms of Mithradates VI from 93/2, four possibly being from the same pair of dies. What is wrong with Lewis's dating of 95/4 and 94/3 for Aropos/Mnasago and Demeas/Hermokles? Aropos uses a winged Agon as his symbol and consequently Margaret Thompson herself once identified him with that Aropos son of Leon (*PA* 2244) who made a dedication on the Acropolis, apparently as *agonothetes* (see *Hesp.* 1941, 219 with n. 57). Since he was *epimeletes* of Delos in the late 90s she has now unconvincingly had to give up the identification (*Athens*, 555). There really was no need.

Three post-Sullan hoards complete the proof. Cretan II and the '1934/5 Hoard' associate Pontic silver of 76/5 and 75/4 with New Style issues of 118/17 and 117/16 in compatible condition (*Athens*, 511 ff. and 523: G. le Rider, *Monnaies crétoises*, 274 ff.). The Athenian dates should surely be reduced to c. 80. The Hierapytna Hoard (*Athens*, 516 f.) included about fifty New Style tetradrachms ending with Architimos/Pammenes and Apellikon/Aristoteles (96/5 and 94/3 T). Among the non-Athenian issues are proconsular cistophoroi of 58 and 53/1 and some 200 denarii ranging all the way down through the 60s and 50s to 49 B.C.—with one outlier, M'. Cordius Rufus (46). Why should the latest Athenian not be put c. 50 also? Margaret Thompson dated the first two issues of a certain Diokles 99/8 and 95/4. The symbols are Asklepios and Hygieia. Now in 52/1 Diokles of Kephisia was appointed by lot priest of Asklepios for the following year and was highly honoured for promising to carry through extensive repairs to the temple at his own cost (*SIG*^{3} 756). Surely the Diokles issues can be put no earlier than 50/49. As with Aropos, Margaret Thompson now has to reject unconvincingly this 'specious' identification (*NC* 1962, 307 f.: *Athens*, 560). A third unrecognized challenge lies hidden in the issue of Theophrastos/Themisto (looped fillet: 109/8 T). The symbol is surely the distinctive head-dress of the *dadouchos*. See G. Mylonas, *Eleusis*, 212 f. and 242 and compare his pl. 78 (a red-figured stamnos) with *Athens*, pl. 138, no. 1230. The first magistrate is Theophrastos son of Themistokles (*PA* 7169), who became *dadouchos* on his father's death and flourished c. 70. This must be roughly the true date for the coin.

From Aristion/Philon to the end of New Style coinage Margaret Thompson's dates are a generation too high. Down to King Mithradates the discrepancy is precisely thirty-three years. Later in the sequence we have seen that it is even bigger. After its resumption c. 84 the coinage is obviously on a much-reduced scale—seventeen of the thirty-three issues are known from five or less coins, four from a single specimen. Lewis justly remarks that 'it is impossible to be confident that we possess every issue or that Athens coined every year' (*NC* 1962, 275, n. 2). The very first five issues of New Style are also thin and Lewis's warning should be heeded

here as well—indeed it may prove to be valid for the whole of the earliest phase before the appearance of any letter control-marks. With their arrival system and continuity emerge at last. But we should still not too easily assume that from the twelfth issue to Aristion/Philon coinage was annual and continuous without a single break, though certainly no new issue is likely to be discovered.

We may treat Apellikon/Gorgias in 88/7 as a fixed point. The combined evidence of hoards and die-links guarantees Margaret Thompson's position for the issue of Phanokles/Apollonios in the preceding sequence. She dates it 143/2 and it thus cannot be later than 110/9. Four issues intervene on her arrangement between it and Sokrates/Dionysodo. The next issue back is Themisto/Theopompos. The relative placing seems fairly sure (*Athens*, 310–15). Sokrates uses Apollo Delios as his symbol. Now Margaret Thompson herself links the Apollo *Lykeios* symbol of Epigenes/Xenon (104/3 T) with the fact that a certain Epigenes was *epimeletes* of Delos before 126/5, claiming him as the moneyer. With much better reason we should identify Sokrates with Sokrates son of Aristion who was *epimeletes* of Delos in 117/16. The earliest date for his issue then will be 116/15. But that of Themistokles, which must precede it, cannot be put in 117/16—since the third magistrate Menoites (a very rare name) was archon that year. Sockrates' issue will have to go in 115/14. The revised dates are precisely thirty-three years later than Margaret Thompson's and so far there is no break in coinage.

Die-links, style, and the Kessab hoard give the issue of Antiochos with the Seleucid elephant an absolutely certain relative position. It is the sixth issue of the three-magistrate Middle Period and, with Appellikon/Gorgias in 88/7, can come no later than 130/29. It *could*, of course, be earlier if there are breaks in coinage between it and Sokrates' issue. But for the moment I would assume the lowest possible date for it and for the five preceding issues which look remarkably solid (see *Athens*, 307–9). How does this suit the prosopographical evidence? Karaichos, who replaced Nikogenes as second magistrate for Antiochos, was third magistrate some two years earlier and first magistrate within a decade. His is another very rare name. He must be the man who proposed a decree in 125/4 (see *Hesp.* 1933, 163 ff.), son of the Karaichos listed as a donor in 183/2 (*PA* 8252). One of the third magistrates from the year before Antiochos' issue can be identified with equal certainty. He signs himself ΔΗΜΗΟΥΛΙ, which Margaret Thompson correctly restored as *Δημή(τριος) Οὐλι(άδου)* (*Athens*, 558 f.). Ouliades of Alopeke was Councillor c. 150 (*Hesp.* 1964, 186 ff.) and his son Demetrios was *kosmetes* of the ephebes in 117/16 and possibly a subscriber to a religious fund in 103/2 (*PA* 3377).

Before Margaret Thompson's revolutionary study Antiochos was identified as a Seleucid prince using the dynastic badge as his symbol—either Antiochos IV in 176/5 or Antiochos VII in exile c. 148 (Bellinger).

Having no Seleucid available in 163/2 she argued that this Antiochos was an Athenian citizen, namely the man who had been third magistrate only a few years before (*Athens*, 158 ff.). A generation later, however, we have an ideal Seleucid claimant. In 130/29 the future Antiochos VIII was resident in Athens, having been sent there by his mother Kleopatra Thea (App. *Syr.* 68)—probably not long after the birth c. 133 of his half-brother, the heir presumptive to the Syrian throne. In 129/8 his father Demetrios II returned from Parthia and began his second period of rule. Kleopatra and Demetrios were apparently reconciled after a fashion, but in 126/5 she deserted his hopeless cause and on his death took the throne herself. The young Antiochos was now with her at Ptolemais and was soon made co-regent. See for all this *RE* xi, col. 786 f. A bronze issue of 123/2 (*BMC Seleucids*, p. 87: pl. xxiii, 5) records his stay in Athens by a type unique in the whole Seleucid series—the reverse of the Athenian New Style silver. It would remind the more knowing of his subjects that he had signed a New Style issue himself only a few years previously.

We are not told precisely when Antiochos VIII returned to Syria, but it may have been very soon after his father recovered the throne. This assumption would partly explain the curious character of the Kessab hoard (*Athens*, 475 ff. and pl. 161). Its forty Athenian tetradrachms end with a very good Dorothe/Dioph piece and five mint specimens of the Antiochos issue. The Syrian issues continue right down to a dated issue of Antiochos IX from 113/12. The Athenian money was doubtless withdrawn from circulation and 'banked' soon after it arrived in Syria—only much later to be fused with a continuing accumulation of local money. Were these splendid coins brought in by the entourage of Antiochos VIII? If his own issue was struck in 130/29, it would then have been the latest money put out by the Athenian mint. He was still only about twelve years old and it is most unlikely that the Athenians would have thought him worth flattering with such an honour any earlier.

The Middle Period will thus begin in 135/4 with the issue of Hera/Aristoph (168/7 T). The last nine issues of the Early Period seem to take the unbroken chain of coinage even further back. Two pairs are die-linked and the final issue—Miki/Theophra—is tied by a transferred obverse to the first of the Middle Period. If I am right the issue which Margaret Thompson dates 177/6 should be brought down to 144/3; it inaugurates the system of double checking through month-letters on the amphora and control combinations in the field (*Athens*, 122). Before this point precision is at present unobtainable. We must hope for new and reliable hoard evidence. Meanwhile I remain rather sceptical about the hoards in which Margaret Thompson puts her trust (*NC* 1962, 318–20: *ANSMN* 1965, 77–80 and 1966, 57–63).

What effect has all this on the burial date of the Agrinion Hoard? Its last two fine Athenian issues—Polycharm/Nikog and Theophra/Sotas (nos.

196 f.)—must be dated c. 132/1 and 129/8, the latter being die-linked with Antiochus (*Athens*, 162). Since Michael Crawford thinks that the denarii end c. 130 rather than 135 (p. 127, n. 32), the revised dating may seem to reconcile the Greek and Roman material, leaving no problems. It is not quite so straightforward as that. Compare the Agrinion New Style (pls. x–xiv) with the description and photographs of nine tetradrachms from the Kessab hoard (*Athens*, 476 f. and pl. 161). Both hoards contain a good run of tetradrachms of the period c. 150 to 130. At Kessab the Dorothe/Dioph specimen is in a very fine state of preservation, the five Antiochos pieces almost FDC. Even Glau/Eche and Miki/Theophr are distinctly good and noticeably sharper than Agrinion nos. 194 and 195. Only Agrinion nos. 196 and 197 are at all comparable to the brilliant Kessab specimens from the 130s but they are clearly anomalous (see pp. 81 ff.). Moreover there were other tetradrachms in Beirut dealers' hands in 1952 and 1953 which may well belong to the Kessab hoard. They fill most of the gaps in the New Style run from Ammo/Dio (kerchnos) on and the issues of Hera/Aristoph (135/4) and Polycharm/Nikog (? 132/1) were in the 'same splendid state of preservation' as the last issues certainly forming part of the hoard. With these two hoards one may profitably compare the contemporary tetradrachms and drachms of a hoard from Attica, which closes c. 122/1 (155/4 T). See *Athens*, pl. 162 for the tetradrachms (c. 146/5 to 138/7) and 167–71 for the drachms (nos. 183 to 411: c. 146/5 to 129/8). The tetradrachms are if anything rather more worn than their Agrinion counterparts (pls. xi–xiv, nos. 177–93), but they are too small a sample. The drachms are a much better gauge of relative wear. They are closely comparable in condition to the contemporary tetradrachms from the Agrinion hoard. Now these would be likely to suffer less wear than the small coins in an equal period of circulation (*NC* 1962, 330), yet all but two are no better. This suggests that the Agrinion tetradrachms were circulating at least till c. 120, whereas the Kessab issues were 'banked' c. 129.

Indeed a date c. 120 is otherwise plausible for the burial of such a large currency hoard as that from Agrinion. It implies an occasion of serious local alarm and disturbance. Moreover Roman money was not circulating in Greece at this time normally and its presence is best explained by Roman military intervention—if only through garrisons. Now in 119 all central Greece must have been in a state of turmoil. A horde of Celtic Scordisci invaded from the north—moving apparently through Dalmatia to southern Illyria and the Adriatic near Corcyra. Our only source on this point is Florus (iii, 4. 1–3): 'post Macedonas . . . Thraces rebellant . . . nec in proximas modo provincias contenti incurrere, Thessaliam (!) atque Dalmatiam, in Hadriaticum usque mare venerunt . . . saevissimi omnium Thracum Scordisci fuere.' That same summer they met and routed a Roman army 'in the region round Argos' and killed the governor of Macedonia, Sex. Pompeius. His quaestor brought up reinforcements and

restored the situation in a fierce battle. Then swiftly concentrating all available Roman troops he inflicted a more crushing defeat some days later on the enemy, who had also been reinforced—not least by some Maedi under King Tipa. This was the turning-point and the barbarian horde went home. See *SIG*³ 700 (Lete, Macedonia) and Broughton, *Magistrates . . .*, i, 527, n. 3 for the date (July 119). Later in 119 the Roman counter-attack began. The consul L. Metellus attacked the Dalmatians, presumably for aiding the Scordisci or at least giving them passage. He seems also to have probed the extreme north-west flank of the Scordisci themselves by a raid on the Segestani, who were centred on Siscia and the River Save (App. *Illyr.* 10–11). Real punishment for the Scordisci was not meted out till 114–107.

Where did Romans and Scordisci meet in 119? We are told that there was an Argos in Orestis in Upper Macedonia. Clearly the Scordisci may have struck inland eastwards towards this area from the Illyrian coast. Even so raiding parties may have passed further south and disturbed Aetolia, where Roman garrisons could be expected in such a crisis. But the evidence for the Macedonian Argos is not very satisfactory (see *RE* ii, cols. 787 ff.), since Livy's *Argestaeus campus* hardly suggests a town and makes one wonder whether the underlying name was any closer to 'Argos' than Argyripa or Arpi in Apulia ('Argos Hippia'). There was, however, an undoubted Argos not very far south from where the Scordisci are known to have broken through—Amphilochian Argos, only some thirty miles north-west of Agrinion!

Whether the hoard was buried in the late 120s or precisely in 119, the Thomsen/Crawford chronology of the denarii is now endangered. Margaret Thompson saw clearly that the Athenian tetradrachms of her pls. xii–xiv (nos. 186–95) must be earlier than the very fine to FDC denarii of pls. lv–lvi (see p. 108, n. 136). They are indeed earlier, but the denarii are even later than her collaborators allow. They choose to rely on two fixed points: (*a*) the capture of Fregellae in 125 as the occasion for the burial of the S. Giovanni hoard and (*b*) Velleius' dating—118—for the founding of Narbo Martius (pp. 121–5). The first argument is subjective and therefore most precarious. The second can be discounted by rigorous criticism. Narbo was probably founded in 114 and the latest Agrinion denarii need be put little before c. 120. See earlier (pp. 95 ff.) for my full case.

The Agrinion hoard proves critical for both the Athenian and Roman series—which must be my excuse for devoting so much space to the chronological problems. The correct dating of Athenian New Style is important for other coinages also. The burial date of the Naxos hoard (*Athens*, 477 f.) must now be brought down to c. 126, while the Delos hoard of 1964 may be confidently associated with Archelaos' arrival in 88. As Tony Hackens shrewdly observed (*BCH* 1965, 520 f.), this should enable us to

make much better sense of the Rhodian gold and silver coinage of the later second and early first centuries.

I have been necessarily very critical of the basic chronology of Margaret Thompson and her collaborators on the Roman side. But I would like to end with genuine appreciation of the careful presentation of evidence in this volume. It is indeed a model of its kind and a most welcome example of scholarly co-operation.

HAROLD B. MATTINGLY

Sylloge Nummorum Graecorum. Vol. IV: *Fitzwilliam Museum, Leake and General Collections*. Part VII Asia Minor: Lycia–Cappadocia. 16 plates. Published for the British Academy, by Oxford University Press, 1967. £5. 5*s*.

NUMISMATISTS and archaeologists alike will welcome this new fascicule of the *Sylloge*, a publication so useful to both. Four hundred and seventy-four coins are here illustrated, a little over half of them so-called 'Greek Imperials'—Greek bronzes struck for local circulation during Roman imperial times. A number of these display the interesting reverse types frequently to be found on coins of these series: Mithras at Tarsus (no. 5338), the temple of Aphrodite at Paphos on coins of the Imperial Province of Cyprus (e.g. nos. 5371, 5374, 5375), and Mt. Argaeus with animals and vegetation at Caesareia in Cappadocia (e.g. nos. 5457, 5458).

The text is by Mr. Martin Jessop Price and provides all the necessary information about each individual coin as well as some useful additional notes such as that attached to no. 5021 (which mentions several articles where the hoard from which the coin came is discussed) and that attached to no. 5218 (which refers the reader to an article on the probable situation of the town of Parlais). Very sensibly the die-positions of countermarks are given, but for some reason this information is omitted in two cases, nos. 5248 and 5261.

The layout of the fascicule makes for maximum clarity and ease of reference. The text is liberally provided with side-headings, large capitals for the names of towns and smaller ones for periods of time (e.g. Fourth–Third century B.C.) or names and dates of emperors. The plates are widely spaced and uncluttered, nor can any doubt arise, as is alas! the case in so many publications, as to which inventory number belongs to which coin. Personally, I should find it helpful if the headings of the pages of text telling one what is to be found on that page (e.g. Lycaonia, Iconium: Cilicia, Celenderis) could be put on the plates as well. Then, as one hunted through the various *Sylloge* volumes, in an attempt to identify that worn bronze coin picked up somewhere in the middle of Turkey, a quick glance

at the top of the plate would tell one exactly which city's coins were shown on it.

The photographs are taken from the actual coins and while one can sympathize wholeheartedly with the compilers in their choice of this method—for the making of plaster casts in large numbers is not the most entertaining of pastimes—it must be admitted that, although gold and silver coins come out of it quite well, the method is not really very satisfactory for bronzes. In a number of photographs of bronzes in this fascicule the details are somewhat obscure; more obscure, in fact, than would be useful to anyone using the plates for purposes of identification or the study of dies. For example, no. 5029—the obverse inscription ΑΥ, which would probably have shown up on a cast, is invisible in the photograph; no. 5177 obv.—the circular countermark apparently containing an eagle, has come out on the photograph as nothing more than a circular light patch; no. 5336 rev.—Telephus and the deer are completely indistinguishable; one has to take it on trust that this is what the vague shapes to the right of Heracles represent; no. 5266 rev.—the details are not entirely clear, but surely this is a male figure. The musculature is wrong for a female figure. The muscle above the iliac crest is far too pronounced and the whole shape of the torso strongly suggests a male figure.

Nevertheless, my criticisms are of a minor nature and in no way affect the gratitude which is the due of the compilers, and especially of Mr. Price, for undertaking to make universally available yet another section of this very fine collection.

ANNE E. JACKSON

Essays in Greek Coinage Presented to Stanley Robinson. Edited by C. M. KRAAY and G. K. JENKINS. Pp. 268 and 33 plates. Clarendon Press, Oxford, 1968. 6 gns.

IT is with pleasure, though with some hesitation, that I review the present volume of essays, presented to Dr. Robinson by his friends and pupils. And yet, if one with little claim to numismatic expertise now undertakes the task, there is a valid reason for it, for all the notable numismatists are themselves contributors.

The contents' page reveals an impressive list of subject-matter, covering an enormous geographical area and lengthy chronological span, the scope of which diminishes only in comparison with the bibliography of Dr. Robinson's own works (pp. 259–63).

There is something of interest for everyone here, and on their arrangement and selection of topics the editors deserve congratulation. Congratulation too must go to the Clarendon Press, which with its customary care

has succeeded in producing a volume magnificently printed and beautifully presented. It is a pity that the plates do not match up to this very high standard: coins have sometimes fared better than casts, but a uniform graininess fails to render a clear idea of texture or fabric. It is impossible to comment in detail on the contributions to so rich a volume, so I must content myself with a brief summary of the essays, touching only on certain problems.

Four of the seventeen essays deal with Athens. Kraay ('An Interpretation of *Ath. Pol.* Ch. 10') boldly plunges once more into the controversy surrounding Solon's reforms of measures and weights. Hammond's interpretation of the chronology (*JHS* 1940, 75, n. 21) is rejected: the changes in measures and weights followed both the *χρεῶν ἀποκοπή* and the *νομοθεσία* (cf. Kraft in *JNG* 1959/60, 21 ff., whose argument is virtually identical; Jacoby, *FGrH* III B. i, 113; 145; ii 465, and, on the chronology generally, Hignett, *A History of the Athenian Constitution* 316 ff., and Cadoux, *JHS* 1948, 93 ff.). *Μέτρα* and *σταθμά* were both increased: the *μέτρα* became larger than the Pheidonian, and the pre-Solonian mina was replaced by, not subdivided into, a (larger) one of a hundred, an interpretation which accords well with Aristotle's use of *αὔξησις*. Kraay follows Milne and Cahn in interpreting the *αὔξησις τοῦ νομίσματος* as the replacement of the didrachm tetradrachma (cf. Jacoby, *FGrH* III B. i, 566 ff.; ii 463). The final section of ch. 10: "... *ἐποίησε δὲ καὶ σταθμὰ πρὸς τὸ νόμισμα κτλ.*" is explained as 'The mint was permitted by law to strike coins at a weight of 5 per cent lower than their face value; in other words for every talent of silver brought to the mint for coining, the mint retained three minae to cover its expenses.'

It is clear that Solon cannot have done anything in connection with coins as such, and Kraay is probably right in interpreting Aristotle's evidence as part of a general fourth-century opinion (p. 7 and in *NC* 1956, 43 ff.), which attributed the coinage reform to Solon in much the same way as Pheidon is credited with the earliest coins. Yet it is perhaps worth bearing in mind the view that *Ath. Pol.*, ch. 10, is an insertion added to refute Androtion's 'economic nonsense', in which case the reform of the currency would have been of especial interest to Aristotle (Jacoby, *FGrH* III B. ii, 465). And some discussion of the practical effects of the reforms would have been welcome. If Solon increased the weights and measures, what relation does this measure bear to his other legislation? And would the new system have affected membership of the Solonian *tele* (*v.* Hignett, op. cit. 100)?

Moving on to the actual coinage of Athens, numismatic techniques come in for comment from Raven ('Problems of the Earliest Owls of Athens'). Linking the early owls will always be bedevilled by the low survival rate of dies (though computing the survival rate itself involves many imponderables); hoards do not provide a secure foundation for dating, and analysis is less satisfactory than at first thought. We are left to make

our choice of date for the earliest owls between Kraay's 520 B.C. and Wallace's 512 B.C. Technique again comes under scrutiny by Hopper ('Observations on the Wappenmünzen'). Die-linking issues of this kind can be a hazardous business without recourse to the originals; some of Seltman's links are shown to be unconvincing, involving a reordering of his scheme for Wappenmünzen.

Some new evidence for the gold/silver ratio is produced by Lewis, who ingeniously uses a series of dedications of crowns of given gold weight and their cost in silver (computed from other epigraphic evidence) to build up a picture of the gold/silver ratio from the second half of the fifth to the second half of the fourth century.

Problems connected with the Athenian ἀρχή also receive attention. Barron offers a demonstration that the fifth-century diskoboloi of Kos were not struck either in contravention of the Athenian Coinage Decree or with Athens' approval. The coins fall into three groups, A, B, and C. On stylistic grounds the earlier issues may be dated c. 480 onwards, so that it is possible to fit in the Koan series between that year and the setting up of the Coinage Decree. Alternatively, since the quota lists suggest disloyalty on the part of Kos between 446/5 and 443/2, group A could terminate c. 448, while B and C would have been struck within this period. But there is a third possibility. A and B could terminate c. 448 and group C might represent the 'revolt' coinage. Barron does not suggest it, because he assumes that groups B and C are both successive and continuous. 'There may be a break between groups A and B; but probably none between groups B and C'. Reasons for his assumption are nowhere clearly stated, but 'the fact that their reverse types occupy a plain field with dotted border . . . and that the ethnic appears in the unusual form KΩION on one die of each group' is apparently taken as evidence of the continuity of B and C. But a mint reopening after a break of several years might well initially follow some of the details of its last issues, and the development from square to round incuse is possibly suggestive of such a break. As Barron himself appears to have qualms about dating the whole of B and C, which 'together form a substantial issue', to 446/5–443/2, it might at least be worth considering whether A and B may not form the pre-448 coinage, while Group C constitutes the 'revolt' coinage of c. 446–442.

Other areas too are represented. A study of the didrachms of Karystos (by Professor Wallace) produces a possible new tyrant of that city, to be dated c. 235–200. A very detailed and comprehensive account of 'The Trihemidrachms of Corinth' with catalogue (Warren) is followed by a broad survey of 'Early Greek Bronze Coinage' (Jessop-Price), while Cahn offers a study of 'Early Tarentine Chronology', based on a sensitive stylistic analysis of the coins. His dating will not, perhaps, go entirely unchallenged, but his careful description and explanation of the types are a model of how such work should be tackled.

Jenkins attacks the problem of the electrum coinage of Syracuse variously attributed to the period between Timoleon and Agathocles (Head), Dionysius II (Christ and Giesecke), and Dionysius I (Seltman). Of these views Jenkins demonstrates that Head's was nearest the mark. Analysis of hoards shows that the electrum appears in an Agathoclean context, and not earlier, and comparison with other material suggests a date of c. 310 onwards for the series. Jenkins's arguments are both objective and attractive; and it is possible that further support for this idea might be found in stylistic analysis.

From Asia Minor we have a hoard of electrum coins from Gordion, c. 625–610 (Bellinger). Consistency of the type supports the view that lions' head coins were the royal money of Lydia, struck at Sardes. Schwabacker contributes a study of Lycian coin portraits (with some of the finer illustrations in the book), and le Rider martials the evidence for Cretan Arsinoe, which, on the testimony of the coins, should be located at Rhithyma. Hellenistic coinage is not neglected. 'The Mints of Lysimachus' (Thompson), with catalogue, appear side by side with 'Monnaies hellénistiques de Byzance et Calcédoine' (Seyrig).

Mørkholm neatly sorts out the complicated issues of the Cappadocian kings Ariarathes VIII, who, up till now, has had no coinage, and Ariarathes IX; on the basis of nomenclature, style, and regnal dating, he produces a scheme which fits well with the other historical evidence. Over a period of about five years two mints are seen to be at work: 'A' producing coins for Ariarathes IX (the son of Mithridates VI), and 'B', the mint of Ariarathes VIII (brother of the former Cappadocian king). Ariarathes IX, however, seems to have succeeded in getting control of mint B, which was then briefly lost to Ariarathes VIII during the latter's second year. But shortly afterwards Ariarathes VIII was overthrown and mint B appears to have ceased production.

Finally Mattingly ('New Light on the Roman Victoriate') re-examines the coinage of the years c. 215–130 B.C., and argues for 209 as the date of introduction of the victoriate and 205 for the beginning of the denarius.

A volume of this kind must in some ways form a landmark in the history of numismatic studies, so that it is perhaps appropriate to comment on some general trends reflected throughout its pages. It attests both an increasingly scientific attitude towards the discipline of numismatics, and the progress of scientific techniques as applied to the study of coinage over the last decade or so. At the same time an increasing awareness on the part of numismatists of the fallibility of techniques at their disposal: for instance, the difficulties of detecting die-links are several times stressed, and problems of using hoard evidence incompletely published are also apparent. Both conditions are fortuitous, and are, perhaps, an occupational hazard of the numismatist. But, particularly in the case of citations of unpublished hoard evidence, the general historian's task in assessing the importance

of the matter before him is not made easier. Improvement of existing techniques and the evolution of others are therefore of importance, and one would welcome scientific aids in areas other than that of analysis: for instance, in the field of die-detection (where perhaps some method of superimposing projected photographic images might prove more efficacious than inspection of prints or casts). Hoards are another question. But might one not envisage in the future a periodical to facilitate the prompt publication of hoard evidence (on the lines of *L'Année épigraphique* or the *Supplementum epigraphicum Graecum*) with good photographs?

The volume goes a long way towards fulfilling an objective implied in the résumé on the dust jacket, where the importance of the study of coinage as an essential element in the study of history is emphasized, though the technicality of a few of the essays perhaps means that the book will remain primarily a work for the professional numismatist. Yet there is much of value to the student of Greek History here, and *Essays to Robinson* should find a place in every historical library. And the breadth of the book's scope attests the influence on Greek numismatics of the distinguished scholar it honours, who has himself contributed so much to the study of numismatics and still indefatigably continues to do so. We now look forward with pleasure and anticipation to his revised edition of the *Historia Numorum*.

SHELAGH JAMESON

Opus Monetale Cigoi. By LUDOVICO BRUNETTI. Pp. xxxvii+158, plates 13. Trieste, 1966. Lire 15,000.

SCHOLARS and collectors can never be sufficiently grateful for the detailed and systematic publication of false material. This is particularly true where the forgeries are both so wide-ranging and so numerous as those perpetrated by Cigoi, for Dr. Brunetti catalogues no less than 959 items ranging from Roman Republican to Italian medieval. This publication is especially valuable because of the uncertainty which has long attended these Cigoi forgeries. In the case of the forgeries of Becker or Cavino, because the dies have survived, a positive if not certainly complete body of false material has been available for reference, and these forgeries, each the work of one hand, present recurring features of treatment and style which facilitate their recognition. In the case of Cigoi, however, at most one die has survived and, according to Brunetti, while Cigoi provided the requisite specialist knowledge and organization, the actual forgeries were produced by others, some of whose names are known scattered around Udine, the centre of Cigoi's activities. This corpus of forgeries, therefore,

has been established from the study of the collection of coins which Cigoi left to his native city of Udine and a painstaking sifting of documents and records.

Because of its bearing on the identification of the false material in the Cigoi collection it was necessary for Brunetti to trace in considerable detail Cigoi's career, especially the numismatic side of it, first as collector, then as dealer and supplier, and finally, shortly before his death, as suspect forger. It is an interesting story in itself, as Brunetti relates it, with a dramatic climax when in 1871 Cigoi was sued by Adolph Hess, the Viennese dealer who had purchased from him over 5,000 Roman and Italian coins, and had to take them back. Unfortunately most of the records of this case have disappeared but it was at this time that Trau, having examined for Hess the Roman material, published the first account of some of the Cigoi forgeries in *NZ* 1871. Brunetti makes generous acknowledgement of the contribution towards the establishment of the Cigoi forgeries by Trau, Willner, and Ulrich Bansa for the Roman material, and by Kunz, Grierson, and others for the medieval. Brunetti stresses the difficulties in isolating and identifying these forgeries. Because very many of the forgeries are of extremely rare coins, it is frequently difficult to find for comparison pieces which are genuine beyond any doubt; for, because of the lapse of time, comparable pieces, existing in collections for a respectable period of time, may be, and in some cases are, themselves the work of Cigoi.

The present reviewer is not competent to discuss the medieval material and must confine his comments to the Roman section. The catalogue is clearly set out with details of identification, reference, and comments, where necessary, on the features which place the piece in the category of false. The references, to Babelon for the Republic and to Cohen for the empire, are adequate but references to more modern and detailed works would have lent a little more precision. We miss, too, a record of weight and die-axis, for Cigoi's accuracy or otherwise in handling these two aspects could frequently be of assistance in identifying a piece suspected as his work. Though not every piece is illustrated (this would have been the ideal) the proportion is high and certainly sufficient to begin to form a basis of recognition of this material. Brunetti, in his discussion, analyses some of the recognition features—irregular and badly imitated wear, style and detail appropriate to coins of one period but imported into coins of another, errors in legends even where the lettering has itself been carefully done, linking of inappropriate obverse and reverse, and the alteration of name and title from a common ruler to a rare one.

From a study of the catalogue it would appear that the Cigoi forgeries fall into several groups. There are a number of pieces which, to judge from the details and illustrations, are no more than cast copies, sometimes linking disparate obverse and reverse, and should occasion little difficulty to the experienced eye. A second group consists of pieces recut and altered,

and frequently fairly clearly so. The pieces in these two categories would seem, by definition, to exist as single examples and as such unlikely to be encountered but they are, at the same time, a dire warning that other reconstituted pieces are liable to be encountered. The remaining group constitute the forgeries proper. These, false on the internal evidence of style and aberrant details, are the really dangerous pieces, for they are apparently die-struck and several examples may well have been launched into the collecting world. These pieces, when constituted as a group, betray some signs of uniformity of treatment, a true 'Cigoi' style. As the catalogue is now constituted the characteristics of this really dangerous group are somewhat obscured by the admixture of pieces false only in that they are cast copies or altered coins.

This is a work which will certainly find a place alongside Hill's *Becker* on the shelves of anyone concerned to maintain his collection free of forgeries and Dr. Brunetti can be assured of the appreciation and gratitude of all numismatists concerned with this material.

R. A. G. Carson.

Les Trésors monétaires gaulois et romains trouvés en Belgique. By Marcel Thirion. Pp. 208 (Cercle d'études numismatiques. Travaux 3). Brussels, 1967.

Coin hoards of any period provide evidence of great value not only for numismatists but for historians and economists as well, and for the Roman world, so extensive both in time and space, the coin hoards are particularly valuable. The record, for the western provinces at least, is gradually being assembled. The example was set as long ago as 1900 by Blanchet's collection of hoards in France. Since the war Czechoslovakia has published its Roman as well as other hoards: there is a record of hoards in Austria and the German series is proceeding systematically. M Thirion now makes available this information for Belgium.

The first account, published by Van Gansbeke in *RBN* 1955, has been revised and extended, and is here presented in a convenient separate publication. The catalogue presents considerable detail—find-spot and date, summary list of content, date of latest coin, place of conservation, and references to publication. One missing element which could with advantage be added to future publications of hoard material is some indication of the degree of detail with which a hoard is published. Many hoards which from the summary in such a catalogue appear to offer great possibilities for a particular line of research, prove, when consulted in the cited publication, to be devoid of the requisite detail. Much frustrating consultation of publications could be avoided by the addition of a critical estimate by the compilers of hoard catalogues.

M. Thirion prefaces his catalogue of hoards with some thoughtful pages of discussion and commentary on the history of the Roman monetary system to which the hoards are related and which influenced their formation. In the section on the antoninianus under Postumus he notes that the antoninianus of Gallienus at the beginning of the sole reign, already fallen in fineness to 100–50, shortly suffered a further fall to 40–60 and by 268 had sunk to 20–30, while the antoninianus of Postumus maintained a fineness of 170–80 right up to 268; and he observes in addition that the greater part of Postumus hoards contain coins only of this emperor. With such a discrepancy in fineness between coins of Gallienus and of Postumus this would not be surprising. Hoards in Britain, however, show coins of Gallienus and Postumus hoarded together, suggesting that there was no great disparity in fineness. Indeed, the coinage of Postumus in hoards seems, at least from visual inspection, to show a marked falling off in fineness well before 268. M. Thirion bases his comment on le Gentilhomme's fineness figures in *RN* 1962, 141–66, but le Gentilhomme's own discussion in 'Le jeu des mutations de l'argent au III^e^ siècle' in *Metaux et civilisations*, i, 113–27, remarks a sharp fall in the fineness of the antoninianus of Postumus to 50 in 266. To resolve this question we require firstly a much greater body of fineness figures and secondly a more secure chronological framework of issues than that at the moment provided by Elmer's system.

The discussion concludes with some very necessary words of caution on the interpretation of hoard evidence. We are reminded that hoards were concealed for a variety of reasons other than the too often suggested imminence or actuality of hostile invasion, and that to plot such an event with any assurance requires a considerable number of hoards whose contents can be dated with precision.

Both numismatists and historians will welcome the pertinent dissussion and the assemblage of material for yet another portion of the Roman world.

R. A. G. Carson

Le Monnayage de Bronze de Postume. By Pierre Bastien (*Numismatique Romaine. Essaies, Recherches et Documents*, iii). Pp. 237 and 66 plates. Editions Cultura, Wetteren, 1967.

Dr. Bastien has personally examined what must be a substantial proportion of the bronze pieces surviving from the reign of Postumus; he has assembled particulars, plaster casts, and reproductions of an even greater number. Such a concentrated attack upon his subject has been rewarded by discoveries of a quite exceptional degree of interest and he has been enabled to set the coinage in order to an extent that has never hitherto been

attempted. This book presents not only the fruits of his labours but also the evidence itself upon which his findings are based; his catalogue of 1,375 pieces is supported by no less than 1,043 photographs of his casts, figures that speak for themselves.

Postumus struck bronze for general circulation in only two denominations, the sestertius and a multiple of it which is to be distinguished by the radiate crown. There was only one official mint but a large number of unofficial ones, ranging from the simplest coiner working for his own petty profit to an establishment operating on so large a scale as to suggest it had demi-official status. These are important findings made by Dr. Bastien. Webb wrote in *RIC* 'the difficulty remains for solution' when considering the problems which the bronze coinage of Postumus posed but he would surely agree that the difficulties have now been resolved most handsomely. Dr. Bastien, in presenting us with the product of an immense amount of hard work combined with a profound wisdom, has set out the evidence in such detail that we can judge for ourselves, and few will wish to dispute his findings.

Dr. Bastien rightly sets his findings in context, tracing the decline in weight and metallic content of the sestertius and glancing forward to the issues of bronze which continue on a much reduced scale until the reforms of Diocletian. We may join with him in seeing a new significance in the two bronze pieces issued in Aurelian's name, the larger of which is radiate, and add other examples, notably the GENIVS PR issue where the laureate version appears to be certainly lighter and from smaller dies. The experiment Postumus made, of issuing two denominations so similar in size (indeed the weights overlap) and distinguishable only by the laurel wreath or radiate crown, was an obviously perilous one, and reaped its inevitable reward in the form of widespread unofficial fabrication of radiate pieces and the overstriking of earlier sestertii. This body of unofficial issues, in part, has hitherto been seen as the work of a second official mint. Here too are to be found the pieces so often referred to as dupondii, being of smaller module but still radiate. Such interpretations can now be confidently discarded. Dr. Bastien has painstakingly marshalled them, linked by dies and engravers' 'handwriting' to show that they are the work of a number of unofficial craftsmen. He points to the profit to be made by imitating the higher value radiate pieces (and these unofficial pieces are all radiate, with one exception which he illustrates at 273c but does not remark upon) but perhaps a more interesting factor is that by his issues of bronze Postumus gave a new life to bronze as a means of exchange in the area he controlled. The emperors striking bronze after Commodus are thinly represented in the Gallic hoards, and exceedingly rare amongst the pieces overstruck unofficially with a radiate portrait of Postumus; the rarity of overstruck 'second brass' is also presumably significant. The overstruck pieces, however, were often very worn and constitute a trap for the unwary seeking to

prove points about the absence of zinc from the brass of Postumus. A worn and well overstruck flan may date from Hadrian or earlier.

Dr. Bastien rightly finds strong support for his thesis that the laureate coins are of lower denomination than the radiate from a small number in which the laurel wreath has been altered to a radiate crown. Although several of these appear amongst the pieces illustrated it is perhaps a pity that they are not paid special attention. Now they have been pointed out it will be difficult to add to their number, for the bona fides of new examples will be hard to establish. The alteration is always crudely done—by chisel cuts, engravings, and in one case at least almost certainly by a punch—and could be easily falsified. To be quite convincing, additions to the number already known will need evidence that their altered state is of long standing.

The mutually exclusive groups into which the coinage falls in the light of the linkages by die style and minting technique which Dr. Bastien has identified scarcely need further evidence to support them, but it is supplied by the marked homogeneity of what can be easily described as the official issues once the others are discarded. There is a clearly recognizable initial issue of two denominations, the one slightly heavier and struck from dies of wider beading-to-beading diameter. Nine portrait engravers are at work, each clearly identifiable by his style, while the reverse dies are the work of very much less skilled men. The same dies reappear throughout the series, being clearly drawn from a central supply. The later issues are lighter than the earlier and are marked by the great stylistic innovation which Postumus was the first to adopt on a wide scale with his obverse dies showing a helmeted bust and bust to the left with upraised hand.

There is perhaps room for warm debate over the question of whether there was a second official mint or not. Indeed Dr. Bastien reserves judgement to the extent of referring to 'Atelier I', the certainly official mint, 'Atelier II', an important centre of unofficial activity and then 'Imitations Diverses'. In limbo between I and II lies the work of a single engraver whom he cannot assign, but is inclined to think unofficial; surely it is likely that he will not hold to this, and that this engraver with his laureate as well as radiate pieces, will, eventually, be firmly linked with the 'Atelier I'.

'Atelier II' produced many pieces with vigorous, but quite idiosyncratic, portraits of Postumus. Indeed these portraits, which are by no means all grotesque or barbarous, are a fascinating study in themselves. The reverse types are less interesting artistically and do not reflect any consistent theme or policy which can be recognized as official, being copied from originals taken at random from any coin in circulation, although they also include types unknown in any official coinage, notably that with a triumphal arch inscribed FELICITAS. With the obverse types they provide a network of die-links and linkages of style which enables Dr. Bastien to assign them all to the output of a single workshop independent alike of the official mint

and of the petty fabricators who were also busy. The interesting point emerges that to procure acceptance at the higher value set on the radiate piece the reverse type is irrelevant. What is needed is a radiate portrait recognizably of Postumus and preferably the long obverse legend which was standard for the official radiate pieces. A radiate crown punched on the head of an earlier emperor would not do. Size in itself seems to have been of less importance; sestertii of the early empire were not infrequently overstruck with quite small dies which fail to cover the wide flans. A map illustrates the whereabouts of site finds; they predominate in the military areas of the north-east. Britain is shown blank, although at least three pieces of bronze were listed in the second Richborough report; for this closing period of the use of bronze it would be interesting to know how far the bronze of Postumus travelled before being driven into disuse by the monetary collapse.

Perhaps passing mention need be made of the special issues, connected in Dr. Bastien's view with the quinquennalia and decennalia, if only to emphasize their independence of the main fiscal experiment which the bronze issues of Postumus represent. Not only are the dies cut by an engraver of an entirely superior order of skill but the pieces themselves appear to represent a token issue of the whole earlier gamut of bronze denominations ranging from medallions down to dupondii and asses. They are exceedingly scarce but, by representing denominations otherwise quite absent they were, until now seen as issues apart, a great source of confusion.

The hoards are not neglected; there is a most valuable review of fifty-five Gallic hoards of the period with, in each case, a synopsis of its content, as far as it is known, and the information to be drawn from it: this is little enough in the case of hoards poorly described and now dispersed too soon to be reviewed in the light of Dr. Bastien's findings. We must remark, however, that the regular pieces, radiate and laureate, and the unofficial pieces, whether of good size and workmanship or of the poorest, are found lumped together with bronze dating back to the early empire. The lightest barbarous pieces weigh as little as 4 gr., constituting significant forerunners of later 'barbarous radiates', and we may wonder what their relationship to the older pieces of full size can have been. The older pieces, on the other hand, for all their superior weight and zinc content had remained in circulation and not been melted down. This must suggest that the coin of higher denomination—the silver—for all its debasement still retained its tariff value at a sufficiently high level for its bronze subdivisions also to retain theirs. Dr. Bastien makes some play with the suggestion that it was the experiment of Postumus in striking two denominations little different in size which brought the bronze down in ruins amidst a mass of fraudulent copies. Need we in fact look for further explanation than that the silver antoninianus did at last collapse? Its subdivisions would then cease to have meaning.

Dr. Bastien awards no degrees of rarity. In so comprehensive a presentation the record is allowed to speak for itself; if only a single die is found of a certain reverse type, then that type's rarity must be high. But we must regret that we receive so little guidance from the author when he must have acquired a unique awareness on this subject. We would have valued his interpretation of what the record can tell, as when he places the discontinuation of the official issues early in the third consulate because pieces marked COS III are rare. Studies in such detail of a narrow field may be few in number but they produce information of a new order of importance. Every scrap of information about the number of dies, the number of pieces surviving from each, the ratio of obverse to reverse dies will be valuable. Again, in a body of examples which exhibits such a wealth of die identities it is difficult to believe that there is not more information to be extracted from the linkages Dr. Bastien records than he has in fact extracted; he himself must be uniquely equipped to extract it. As at present recorded in footnotes, the linkages found present a confusing picture to read and an analysis of them would be exceedingly welcome.

It is one of the fascinations of this coinage that interest stems so much from details of minting technique and the artistry of the obverse die engravers in both the regular and the unofficial workshops. Like Carausius, Postumus had robust features, and no stereotyped version of them, in the bronze, became established. Dr. Bastien points out that the flans at the regular mint are usually cast (they also frequently appear to have been hammered into a polygonal shape), while the main unofficial workshop at first used flans cut to shape. Neither resorted to the method so familiar in the later work of the Roman mint which resulted in an oblong flan with short sides rounded. Later the unofficial mints resorted heavily to casting, using moulds taken from their own pieces, and Dr. Bastien illustrates more than one series in which a cast piece was used to make a mould, so that the resulting pieces diminished in size. The dies are aligned regularly at the official mint but at random elsewhere.

This is an abundantly stimulating book which by bringing order into a period of confusion draws illumination for further studies from a source which perhaps we least expected to provide it. The production is faultless and of a quality only fitting for so distinguished an author who must at once be thanked and congratulated for his achievement.

D. D. Yonge

Carolingian Coinage. By KARL F. MORRISON, with the collaboration of HENRY GRUNTHAL. Pp. xii. 465, 48 plates, 3 maps. American Numismatic Society, *Numismatic Notes and Monographs*, no. 158. New York, 1967.

THE publication in successive years of two books on Carolingian coinage which share between them a common author must be regarded as a major numismatic event. The new Morrison–Grunthal volume is a more ambitious affair than the Dolley–Morrison catalogue of the coins in the British Museum that preceded it. Although Professor Morrison modestly describes it on p. viii as only 'a work of reconnaissance', he at the same time makes plain his hope of superseding 'the independent, sometimes incomplete, and contradictory catalogues of Gariel and Prou'. The central section of the work is the catalogue of coins, which brings together a great mass of material from museum collections and sale catalogues. Subordinate to this are a general introduction, broken down into several headings (dating and classification, pp. 1–16; coin finds, pp. 17–21; interpretation of types, pp. 22–31; metrology, pp. 32–64), and a list of coin finds. Though one is somewhat taken aback to find in the introduction no section on mints and that on metrology inordinately long, especially in view of an earlier article by the author, it is clear that the work is intended to represent a major work of scholarship.

Unfortunately it can be accepted as such only with considerable reservations, and it will certainly not supersede either Gariel or Prou.

It does, of course, in some respects mark a real contribution to knowledge. Its plates, which are of outstanding quality and are based largely on the great and virtually unexploited Berlin collection, place at the scholar's disposal a great mass of new material, even if the coins are badly arranged and some are manifestly misplaced (e.g. no. 1590: monogram of *Karolus* and not *Rodulfus*) or false (no. 1535: Tardani forgery). Mr. Grunthal's *dépouillement* of sale catalogues should save scholars many hours of work despite its incompleteness,[1] serious omissions in its coverage (e.g. the neglect of the Luneau sale of 1923, the Grantley sale of 1944), the pointlessness of some of the entries (e.g. the listings of *Christiana Religio* coins), and the failure to remind the reader that several different sale catalogue entries may all refer to the same coin. The recording of weights is valuable, though care must sometimes be taken in their use: they occasionally include damaged or mounted coins without any warning being given of the fact

[1] The reader should be warned that some entries at least are extremely incomplete. A check of no. 451 (Louis the Pious, Milan) against the contents of my own photofile, which represents no more than a casual accumulation of material, reveals no fewer than *seventeen* coins, all illustrated in sale catalogues, to be added to the eight that are listed. In some cases the catalogues may have been unavailable to Mr. Grunthal, but where actual entries are incomplete this can only be ascribed to carelessness. Thus to Helbing Oct. 1933, nos. 1298, 1299, 1300 must be added nos. 1301, 1302, and 1303; Kress Oct. 1960, no. 1389, must be added no. 1390.

(e.g. nos. 105, 116, one of the coins under no. 515). The list of coin finds is important, though here again one must make serious reserves; places are not adequately identified, the dating is frequently untrustworthy, there are serious omissions (e.g. the important Eckeren and Breuvery hoards, described by Louis de Coster and Emile Schmit in 1862 and 1920 respectively), and there are occasional errors (e.g. in the analysis of the Arras hoard (no. 67) where coins of Visé, Chinon, Condé, and Melun are omitted and the totals for several mints are incorrect; in the assertion that the Oudwoude hoard (no. 48) has been dispersed, when according to the source cited it is in the Frisian Museum at Leeuwarden). There are good observations on the problems raised by the immobilized types, more especially in the *Christian Religio* series. But even where interesting points are raised—e.g. those on chronology on pp. 2–3—the discussion is not pushed far enough, and as a whole the volume is a serious disappointment.

The basic fault is that the work has been not so much planned as thrown together. There seems to have been no attempt to think out the problems of Carolingian coinage as a whole, to arrange the material properly, or even to co-ordinate the views of the two authors. The bibliographical infrastructure is in every respect inadequate, the reader being in general left with no proper information regarding the present state of the subject.

This last defect is most apparent in the list of coins, where Prou and Gariel references are given but as a rule nothing more. These works do in fact contain important discussions of mints. But their conclusions are not always accepted by Morrison–Grunthal, and one is almost never told why. On pp. 111 ff. a long series of coins are relegated to the category of 'Indeterminate Mints', though many of them have generally accepted attributions: e.g. nos. 236 (Avranches), 244 (Bingen), 252 (Huy), 255 (Angoulême), 260–1 (Limoges), 262–5 (Mainz), 268 (Melle), 290 (Saint-Trond), 298 (Tournai), 299 (Thérouanne), 302–3 (Uzès). It may well be that these are not all correct, but no justification is offered for the authors' doubts, and the user of the volume, looking up such mints in the index, will find no references to them under these numbers. The phenomenon repeats itself at intervals throughout the volume, e.g. on pp. 250 ff. under Charles the Bald. Place-names qualified as *fisci*, which are scattered over pp. 250–4 in the category of 'Indeterminate Mints', were discussed by Serrure in 1879 and Vannérus in 1948, so that two of them (Estinnes, Bastogne) can be identified with certainty and three others with very high probability (Couvin, Vedrin, and Lens near Liège). No hint of this, and no entries regarding the mints, are given anywhere. One is astonished to find, in the same unreasonable category of 'Indeterminate Mints', the coins of St. Sebastian of Soissons (no. 1145) and St. Philibert of Tournus (nos. 1191–2), the latter improbably attributed to Lothaire II, to say nothing of most of the Beneventan coinage of the Emperor Louis II (nos. 1176–82). At other times attributions are accepted which might well have been questioned,

e.g. no. 736 (see *RBN*, 1948, 99–100),[1] or occasions on which a better acquaintance with the literature would have shown that a coin was nothing but a forgery and could be dropped, as is the case with no. 98, a supposed coin of Aachen (see *ZfN*, 1913, 322). The treatment of mints in the volume is little short of a disaster.

The lack of correspondence between the dates of rulers given in the text and plates and those implied in the introduction and the list of coin finds will be a source of trouble to many readers. On p. 87 and pl. iii the dates of Carloman's reign are given as 768–71, though on p. 3 it is suggested, I believe wrongly, that the king started minting as early as 755, and the date of the Imphy hoard, which contained eleven of his coins, is given on p. 339 as c. 754–61. On p. 177 and pls. xxi–xxxvi Charles the Bald's dates are given as 843–77, though the regnal years of his charters run from 840, several hoards containing his coins are assigned to c. 840, and on p. 3 it is suggested that he may have begun minting in 829 or 839. The dating of the coin finds is so confused that the reader will be well advised to ignore it completely. Why date the Biebrich hoard (p. 343) to 790–814 when it contained coins of Pope Leo III and so must be later than 795, the Pilligerheck hoard (p. 356) to c. 850 when it contained coins of Lothaire II and so must be later than 855, Courbanton III (p. 372) to 880–900 when it contained coins of Odo and so must be later than 887, the Arras hoard (p. 362) to c. 880 when according to the printed account it contained coins not merely of Odo but of Charles the Simple, who was only crowned in 893? In actual fact its coins of 'Charles the Simple' are better assigned to Charles the Bald, but their reattribution will still not save the case for c. 880.

Failure to think out and plan the volume is apparent in a number of respects:

(*a*) The decision as to which sovereigns to include and which to omit seems to be quite arbitrary. Berengar of Friuli, Guy of Spoleto, and their successors are omitted from the Italian series, Robert I from the French series. The reason is presumably that they were not 'Carolingians'. But neither were Odo, Boso, Louis the Blind, Raoul, nor Conrad the Pacific, who are all admitted, and if it be said that Louis the Blind was a Carolingian in the female line, then so was Berengar of Friuli, whose coins are left out. Why include coins of Conrad the Pacific but not those of his son Rudolph III? Similar inconsistencies occurred in Dolley–Morrison, but they are not the same ones: Morrison–Grunthal includes the coins of Raoul and the Beneventan coinage of the Emperor Louis II: Dolley–

[1] This coin is particularly unfortunate. On p. 194 it appears as no. 736, a coin of Charles the Bald, mint of Lens; on p. 250 it reappears, with the inscription differently rendered, as of an 'Indeterminate Mint' (no. 1111). The two are the same coin, now at Berlin (ex Gariel, ex Glisy hoard), and the attribution to Lens, which involves reading the first letter as a *lambda*, must be discarded.

Morrison excludes both of these but admits the 'Carolingian' issues of Grimoald III, which Morrison–Grunthal ignores. There is neither rhyme nor reason in the two selections, and the reader can have no clear idea of what he will or will not find in either volume.

(*b*) The order of rulers, from 840 onwards, is quite irrational. Instead of the successors of Louis the Pious being grouped together in separate and intelligible sequences, for France, the Middle Kingdom, Germany, Italy, etc., as is done in, for example Engel and Serrure, they are thrown together anyhow. The coins of Lothaire I are separated from those of his son Lothaire II by the issues of Louis the German, Pepin I/II of Aquitaine, Charles the Bald, and the Emperor Louis II. The coins of Louis the Blind, or what purport to be such, are separated by five reigns from those of his father Boso. The reader can obtain no coherent picture of the sequences of rulers and their coins for any part of the empire, and his difficulties are enhanced by the omission of any list of rulers from the table of contents.

(*c*) No consideration seems to have been given to unreasonable aspects of accepted attributions. Charles of Provence, the youngest son of Lothaire I, rules from 855 to 863 a substantial kingdom which included the mints of Arles, Lyons, and Vienne: were these really inactive during his reign? Could not some of the coins customarily attributed to Louis the Child (899–911) be better attributed to Louis of Saxony (876–82)? It is at least difficult to believe that no. 1546/8 (on pl. xliv) is later in date than no. 1533, both being coins of the same mint, more particularly when the Mainz issues of Conrad I are taken into consideration. Is it credible that the Emperor Louis II (855–75) struck no coins at all other than those associated with his south Italian activities of 866–73 (pp. 259–60)? Quite apart from the fact that he is normally assigned the broad-flan deniers here given to Louis the Blind (no. 1576*a*), there is decisive hoard evidence to the contrary (e.g. the Hermenches hoard). The authors might of course defend themselves on the ground that standard works of reference attribute no coins, or few coins, to such rulers as Charles of Provence and Louis of Saxony, but scholars may be expected to question the conclusions of their predecessors. The vagaries of the Morrison–Grunthal attributions are in fact too numerous to be listed. Why is no. 1562 attributed to Louis the Child when an identical piece had been given earlier to Louis II/III (no. 1239)? On pp. 266–7 a group of broad-flan deniers are assigned to Carloman of France (nos. 1217–22) and only as an afterthought is it suggested that they 'may represent' issues of Carloman of Bavaria. There is no possible doubt about the matter, for Carloman of Bavaria was for a time king of Italy, the coins are Italian in fabric, and Carloman of France never reigned south of the Alps.

(*d*) Whether the classification of coins within each reign should be made directly under mints, or first under issues and only subsequently under

mints, is a matter of opinion; the authors have adopted the first scheme, though the second would have had the advantage of showing the reader which mints were functioning at any particular time. Quite apart from this, the actual listing of the coins is most unsatisfactory. The authors claim (p. viii) to have incorporated only 'major variants' and omitted minor ones, but they have not thought out what these categories imply. Many of the variants included are trivial, representing nothing more than the caprices of a die-sinker, while divergences of substance are sometimes ignored. The chief series of Louis the Pious's deniers of Milan employed an elaborate system of variously placed pellets in the obverse inscription which is not yet understood but which must have had purpose and not chance behind it. Its existence is ignored in the description of the series in question (no. 451), though it had been carefully noted in the Fürstenberg catalogue from which several of Mr. Grunthal's citations are drawn.

A final complaint must be made about the maps, of which there are three. They present some curious features: the River Ebro consistently spelled *Elbro*, Deux-Jumeaux here and in the text spelled *Deux-Jumeux*, Quentovic removed from the mouth of the Canche to the site of Calais, *Roda* (the modern Rosas) in the Spanish March confused with Rodez, Melle, one of the chief mints in France, misplaced by nearly 400 miles and placed in Flanders instead of in Poitou. There is no map of coin finds, though in view of the absence of regional indications from the list of finds this is the one that would have been most helpful to the reader. Its compilation would also have saved the authors from a number of errors, such as placing the Alstad find (no. 243) in Denmark instead of Sweden and the almost unbelievable transformation of the most important centre of early Viking trade into two distinct localities, Haitabu in Germany (nos. 161, 162, 183) and Hedeby in Denmark (no. 264).

PHILIP GRIERSON

1969 Standard Catalogue of Canadian Coins Tokens and Paper Money (Seventeenth edition). By J. E. CHARLTON. Pp. 126. Whitman, Racine, Wisconsin, U.S.A., 1968. $1.50.

LIKE all the products of the Whitman company, this catalogue is exceedingly well printed and lavishly illustrated. It continues to be an invaluable asset to the collector of Canadian coins, even more useful now that nearly all the inadequate line drawings which disfigured earlier editions have been replaced by good photographs. Following the foreword, which is in itself a good short introduction to modern numismatics in general and Canadian in particular, the catalogue begins with coins of the French regime in Canada, followed by detailed listings of all the tokens, official and un-

official, which circulated there before the main coinages of the Dominion started in 1870—the 1858–9 coins are of course specifically for the *Colony* of Canada. This early section comprises nearly half the book. Most items are priced in five condition grades, and Breton numbers (from his *Illustrated History of Coins and Tokens of Canada* (1894), still the standard work) are given. I find this section rather muddled in its layout: there seems to be a haphazard jumbling together of different categories of pieces, varying from the purely official issues of New Brunswick and Nova Scotia, through official tokens, bank tokens, and private tokens of all kinds, to merely advertising checks and medals having no real currency function at all. This makes an otherwise admirable book very confusing, especially to beginners. In a revision some attempt should be made, I think, to rationalize the arrangement, so as to give collectors a better idea of the status of the different classes of pieces.

Further, one may ask why the George IV issues for 'the Colonies' in general (the 1820–2 Anchor money) should be included at all. So far as I know there is no evidence they were ever circulated in Canada—and if they were, can the right place for them be sandwiched between unofficial Ontario checks and official Nova Scotia tokens? Among the latter, the '1382' (for 1832) halfpenny is a particularly interesting piece. It is an error made not in the official issue but in a currency forgery—and as such rare and considered so desirable by collectors that bogus copies have been produced. This is that singular thing, a forgery of a forgery! In this section also a few interesting cross-connections are passed over: for example on p. 31 an Ontario halfpenny dated 1815 is said to be 'doubtless antedated to evade the laws against private tokens', but it is nowhere stated that this 1815 die belongs to a Starr and Shannon token of Nova Scotia (p. 38).

The arrangement is not even consistent geographically: the Newfoundland tokens come in the midst of the others (after British Columbia), but the coins themselves go at the end, after Canada proper. Their listing calls for no special comment, except that many prices, especially for key dates and Victorian issues in top condition, are now fabulously high.

In the main section dealing with the official coinage of the Dominion, with which are included for convenience the similar 1858–9 issues, the layout is admirable and very little can be found to criticize. The photographs are almost all of them admirably clear. Most coins are priced in six and some in seven condition grades. Each type is prefaced by notes on how to grade the coins, a very useful feature which goes a long way towards defining and making objective a matter which is always notoriously one of opinion. Many varieties are illustrated with enlargements. Fascinating among these are the 1947 5c. and 25c. with a neat round dot after the date. As is well known, coins with this date followed by a tiny maple leaf were struck in 1948 before the 'no IND: IMP:' obverses were available. One is tempted to speculate that the dot may be deliberate, a marking having

the same significance as the maple leaf, but used before it was adopted—the 1936 coins with dot, struck in 1937, serving as a precedent.

The so-called 'Arnprior' variety of the silver dollar, and three of its fellows, are the subjects of some of the few inadequate illustrations in the book. These ugly line-drawings should be replaced by photographs as soon as possible. But I do not share with Canadian collectors their enthusiasm for this and other 'missing water-lines' varieties, which are only due to faulty finishing of the dies, or even to straightforward die wear, and have very little real significance. There must be many other slight varieties of the same kind which could logically be included—one must be thankful they are not.

Following the Newfoundland list we have a section on the paper money. While seeming more akin to philately than to numismatics, it reflects the growing popularity of this kind of collecting in North America, which as yet has no parallel in Britain—there is so far no comparable listing of British banknotes. No doubt it will come.

D. L. F. Sealy

Getting Started in Coin Collecting. By Burton Hobson. Pp. 128. Oak Tree Press, London, 1967. 18*s*. 6*d*.

It is a pity Mr. Hobson's little book has so marked an American slant, but having said this there is very little else to which one can take serious exception: it is of course an English edition of one first published in the United States. For its size it is very good indeed, and can be thoroughly recommended to the young (and not so young) British beginner. To such it is a salutary reminder of the existence of other coins besides our own —it takes a broad view of the coins of the world, ancient as well as modern. For one must deplore the fact that the British collecting scene is at present very top-heavy, only about one collector in ten—at least in the beginners' range—apparently having any interest outside British coins, and modern milled ones at that. Numismatics in America is without this parochial narrowness. Youngsters should be encouraged to collect modern coins of the world, many of which are not difficult to obtain from friends and relatives travelling abroad: such collecting has the educational value often claimed for stamp collecting, with the added incentive, perhaps, of a certain intrinsic value as well, and the potentiality of a much deeper historical perspective. Mr. Hobson helps us to enter this fascinating field, and is a reliable guide to its broad outlines.

The prolific photographs are the book's main strength, and it is in them that its American genesis is most obvious. But with a view no doubt to the British market a fair sprinkling of English coins are included, some of them

more than once. The 1951 penny is represented on p. 8 and again on p. 11; I am not sure I see the point of showing the *obverses* of all the English farthings, 1937–56 (p. 21)! There is, however, scarcely a group or country which the young collector is likely to come across unrepresented among the illustrations, and there are many fine coins among older and rarer series too. The method of printing, unfortunately, often does not do justice to them—many have an unpleasing soot-and-whitewash look, while others are disastrously dark. The attempt to depict grading in Victorian pennies (p. 27) partly fails for this reason. This is a pity, as it is the sort of thing of most particular value to beginners.

The book is divided into three main parts. A short introductory section entitled 'Why collect coins?' answers this question with reference to history and geography, art, and as a hobby—but rightly does not over-emphasize the investment angle. 'How to collect' covers many different ways of making a collection—by series, type, topic, etc. The very important, and commonly ill-understood, matter of *condition* is very fully dealt with, and its terms discussed: there is nothing comparable to this in any book of British origin. There are hints on commemoratives, crowns and thalers, and (mainly illustrations to show the wide diversity possible) topical or 'thematic' collecting. Many more senior numismatists could with profit study the bit on oddities and errors and how they happen—if only to get their importance, and hence their real value, into proper perspective. Finally we have a section on ancient coins, covering briefly Greek civil and regal issues, those of republican Rome and the Imperial series. Denarii of the twelve Caesars are shown, with brief biographical notes. There is a list of Roman emperors up to Honorius, with their dates and usual titles as found on coins. It is not clearly explained anywhere why so many reigns overlap in time. One misses a brief mention of the Byzantine series, and I feel that a little more about oriental coinages would not come amiss. There is no index.

D. L. F. Sealy

Die Münzprägungen des Islams 1. Band: Der Westen und Osten bis zum Indus mit synoptischen Tabellen. By Eduard von Zambaur. Edited by Peter Jaeckel. Pp. 286, 26 tables. Wiesbaden, Franz Steiner Verlag, 1968. £6. 19*s.* 6*d.*

This volume will be greeted with gratitude and relief by every student of Islamic numismatics who has ever tried to answer the question, 'What is known about the activity of such-and-such a mint?' The laborious and time-consuming hunt through the entries, indexed by dynasties, in Mayer's invaluable *Bibliography of Moslem Numismatics*, has been the only path

to the answer until the appearance of this volume. The fruits of a lifetime's careful record-keeping by one of the giants of the subject, it lists the mints of the Muslim world (excluding India and the Far East), indicating the years during which each was in operation, by whose authority each issue was struck, and where in numismatic literature the justification for each entry may be found.

The arrangement of the material is a model of simplicity: the mint-names (arranged in Arabic alphabetical order, but listed later in the Latin order with their classical and Westernized versions); brief geographical notes; an indication of each dynasty striking there, with the Hijra years of recorded issues; references to the relevant geographical and historical sources, both Arab, etc. and secondary; and finally, references to the publications from which the information about each year's strikings is derived. At the end of the volume tables summarize the information chronologically, demonstrating at a glance year by year which mints were at work, in what metal, and where a published reference may be found.

A quarter of a century has passed since the work reached the proof stage, when wartime conditions prevented its publication (1942). It is in its original form that the work now appears, and there are, inevitably, misprints and loose ends that betray its eventful history and barely finished state. There can nevertheless be no doubt that its publication as it stands is justified beyond all question. It draws on many works that are difficult if not impossible to find, including the author's own manuscript notes on, for example, unpublished material in Paris, Berlin, and Istanbul, and on Eastern European periodicals that cannot be consulted in this country. The latest works cited appeared in the years 1938–9.

No words of praise can be too high in paying tribute to the value of this superb piece of scholarship.

HELEN W. MITCHELL

The Indo-Greek coins. By MEHTA VASISHTHA DEV MOHAN. Pp. ix, 196, 7 plates. Ludhiana, Indological Research Institute, 1967. Rs. 32.

THE author contends on p. vii of the preface that Indo-Greek coins were not struck from dies, but cast in moulds, going on to deny that arguments based on overstrikes can have validity. This thesis is repeated on pp. viii, 75, and 104, but a reference to Birbal Sahni's *The Technique of Casting Coins in Ancient India* suggests that there is confusion with Ancient Indian cast coins. Elsewhere however (p. 78) the 'joint-coin' of Lysias and Antialcidas is explained, plausibly enough, with A. K. Narain, as a mule, on the traditional hypothesis of the accidental re-use of an obsolete *die*. Again, on p. 80 a chronological argument depending on overstrikes is quoted without dissent. Thus the author's position is rather equivocal. Yet despite Sahni's

puzzling evidence on the casting from ancient moulds of Maues coins at Taxila, it could cause grave misconceptions to entertain the view that genuine Indo-Greek coins were made by casting. When Professor Mohan criticizes a certain subjectivity in Tarn's treatment of his theme, the comment has a measure of justice. For stimulating as Tarn's approach is usually acknowledged to be, he applies the methods of a historian where the textual evidence is hardly strong enough to bear them, and resorts to daring combinations and inspired guesses, but without the thorough analysis of numismatic evidence that would have supplied a useful check on the results so obtained. Such is the persuasiveness of Tarn's method that so far from correcting it Professor Mohan also falls into the snare, himself admitting sweeping combinations and conjectures. Apollodotus is the father of Menander (pp. 81, 111, etc.). The reverse types of Indo-Greek coins regularly indicate their mints (p. 27). Here and elsewhere the inferences of Tarn and others are made into certainties, and in turn become the base for similar constructions. This is indeed not to contend that just observations are nowhere made in the course of the discussion. Monogram links, in particular, are sometimes shrewdly observed, e.g. between Strato I and Polyxenus (p. 118) implying geographical, perhaps also chronological proximity. Though the theory that the monograms represent the marks of contractors tends to project modern conditions, and need not be taken literally, it is no harder to reconcile with the evidence than any other hypothesis. The grouping of monograms on plate vii is not presented as a chronological arrangement, but none the less it presents some instructive features. We may regret that a writer working in the Punjab makes no reference to local finds or collections. He has depended wholly, it seems, upon published sources, and from these his plates are mostly extracted. Because of blockmaking difficulties, in one or two cases the inscriptions have had to be retouched.

A. D. H. Bivar

Pisanello's medallion of the Emperor John VIII Palaeologus. By Roberto Weiss. Pp. 32, with 16 plates. The British Museum, London, 1966.

This admirable booklet is a worthy compliment to the monumental work performed at the British Museum by G. F. Hill on the Italian Renaissance medal. Hill produced in 1905 an account of Pisanello as an artist which is still the best general work available. In dealing with Pisanello's medals in the *Corpus of Italian Medals of the Renaissance*, Hill had to suppress the fascinating detail and documentation of the biography, thereby losing some of the vitality and interest of the medals. Professor Weiss provides just the right quality of comment to kindle interest in the most remarkable of all

portrait medals. The medal of the Emperor John VIII Palaeologus was the first renaissance portrait medal, made during the period of the Ecumenical Council of the Eastern and Western Churches at Ferrara in 1438–9. In the first half of the essay Weiss examines the medal in the widest possible way by commenting on Pisanello's position as a medallist, the circumstances of the commission, its precursors in form, the artist's contacts with the imperial court, and the iconography of the medal itself.

The second half of the booklet deals with the 'fortuna' of the medal, showing how it was reproduced for itself by contemporaries, and how the portrait type was misused as a source for the images of ancient worthies, and Greek or oriental rulers, in the work of fifteenth-century sculptors, painters, illuminators, and engravers. These topics have been touched on by Hill and others, but in the booklet Weiss gives his view and authority on some controversial points, and bases his writing on his own studies of the origin of the medal and on the divulgation of the image of the emperor. In the section on Pisanello as a medallist the sheer originality of the invention is perhaps understated. Pisanello always signed his medals as the work of Pisanello the painter, and although the earliest reference to him as a sculptor is made only at the end of his career, the first medal is not only a remarkable invention as to form and content, but is also technically a very skilful piece of sculpture. Pisanello was clearly well trained as sculptor or metalsmith besides being the most famous portrait painter of his day.

The only controversial point on which Weiss does not comment is the attempt made by J. A. Fasanelli[1] to show that the medal was made in Florence and not in Ferrara. The Council was forced to move to Florence for political reasons early in 1439. Fasanelli's principal concern is with a group of drawings by Pisanello which record scenes of the imperial retinue at Ferrara. The drawings are shown to be from a sketch book, and their chronological order is reconstructed. Fasanelli bases his proposed date and place for the medal on consideration of the medal portrait, the reverse subject, and historical probability. In considering the portrait on the medal obverse he takes the portrait drawing of the emperor (Weiss, pl. ix. 2) to be the artist's sketch for the medal. Weiss does not go so far, but does accept the drawing as by Pisanello. Shortly after the booklet was published the latest monograph on Pisanello's drawings by Fossi Todorow[2] appeared in which this drawing is rejected as a workshop production. The drawing does not at least relate to the leaves of the sketch-book. Fasanelli makes much of the point that the medal effigy shows the emperor wearing the jewel ornament on the hat, a feature only described by a Florentine

[1] J. A. Fasanelli, 'Some notes on Pisanello and the Council of Florence', in *Master Drawings* iii, 1965, 36–47.

[2] M. Fossi Todorow, *I disegni del Pisanello e del sua cerchia*, Florence, 1966. Hill's *Drawings by Pisanello* of 1929 has been reissued by Dover Publications Inc., New York, 1965.

chronicler describing the emperor's entry to the city on 15 February 1439, and inferring that the preparatory drawing shows that Pisanello did not see this remarkable jewel. If the drawing is rejected as a workshop design, and the solemnity of the emperor's arrival in Ferrara believed to be equal to that of his appearance in Florence, one can believe that Pisanello saw the jewel in Ferrara. Here the problem of the commission for the medal is relevant. The question as to who invited Pisanello to make the medal has not been answered, but is worth considering. The emperor and Pope Eugenius IV were the guests of the Este court in the city. Pisanello was court artist and reputedly the finest portrait painter in Italy. Works of art then were not speculative, not even for a painter of Pisanello's stature. Fasanelli argues that the commission for the medal could not have come from the imperial court because it was too poor, nor from the papal court because it was bankrupt. In terms of fifteenth-century patronage such degrees of poverty are irrelevant, and the suggestion ignores the possibility of the medal's being commissioned by the host to these courts.

Could the invention of the medal be due to a commission that needed several images of the emperor for commemorative purposes, a problem to which Pisanello applied his skill as a sculptor, and invented this means for multiplying portraits? When the emperor sat to Pisanello, he would wear his finest court dress, including the jewel. No drawing has survived because Pisanello may have modelled directly into wax. No Pisanello wax model is known,[1] in fact the earliest surviving wax for a medal is only of the beginning of the sixteenth century.

The accepted view of the reverse of the medal is that it illustrates a journey to a shrine at Prato made by the emperor. Fasanelli would have it as an ingenious compliment by Pisanello to the emperor referring only in general terms to his reputed piety. The equestrian figure of the emperor on one of the leaves of the Ferrarese sketch book (Weiss, pl. ix, 1) is accepted as autograph Pisanello by Fasanelli and by Fossi (no. 57r), and Fasanelli even ingeniously suggests the day, 8 October 1438, on which the drawing and the notes of colour were made. The occasion can be deduced from the histories. The colour notes may indicate that Pisanello already had a commission to paint the emperor or the court. The stance of horse and rider on the medal reproduce the stances in the sketch, and the dates of the medal are probably Ferrara, between 8 October 1438 and the departure to Florence in February 1439. There is a record in a letter of 1551 of another medal of the emperor with a reverse of the Cross of Christ held by two hands. Weiss (p. 17) leaves the problem of authenticity open, but Fasanelli adds to his case for the extant medal's being made in Florence by believing in the lost piece. In consequence, on grounds of content and probability

[1] A coloured wax portrait is claimed to be by Pisanello in lot 4 of the catalogue of the R. Gaettens collection, 1 April 1966, auction catalogue no. XXI of R. Gaettens, Lübeck.

the traditional view of the medal as expressed in Hill's *Corpus* and supported by Weiss is confirmed, and the booklet can be welcomed as a proper example of how to study a medal.

The work is completed with an excellent bibliography touching on the various matters in the booklet. The work by Fossi Todorow on the drawings should be added. Since the issue of the booklet, the second edition of Grierson's numismatic bibliography has been published and should be substituted for that cited on p. 29.

J. G. POLLARD

INDEX

Abarsahr, 303
Ābhīra Īśvarasena, 293
Abydus, 5 f., 8 f., 11
Achaean League, 325 ff.
Aḍḍha, 306
Aduetanus, 59
Aegina, overstrike on coin of, 20
Aemilian, coins in the Mattishall hoard, 139
Aemilius, M. f., M, 103
Aetolia, 325, 327
Afghanistan, 301 ff.; find, 302
Agen hoard, 64, 68
Aginnum (Agen), 37
Agon, 328
Agout hoards, 36
Agrinion hoard, 95, 98, 104, 325 ff.
Ahenobarbus, Cn. Domitius, 104
Aiguillon hoard, 68
Ain Tab hoard, 14 n. 2
Airam, 304
Ajanta, 299
Ake, 7 f.
Akerekonton, 57, 63, 65 f., 78
Albi hoard, 66
Albi (Tarn) find, 57
Alcester (Warwicks.) find of Roman antoniniani and sesterii, 123 ff.
Aleppo hoard, 249, 258 f., 261, 263 f.
Alesia, 49, 73; finds 50
Alexander II, 24
Alexander III, 6 ff., 10 ff.
Alexandria, 7 f.
Alexandria Troas, 12
Alexandrian tetradrachms, analyses of some early, 317 f.
Alexius I, style of nomismata, 277 f.
Alfred, imitations, 284
Alise St. Reine finds, 49
ALLEN, D. F., *Monnaies-à-la-Croix*, 33 ff.; hoards, 62 ff.; key dates and hoards related 68 ff.; list of coins illustrated, 74 ff.
alloys, used for antoniniani, 145 ff.
Al-mina (Antioch) hoard, 257, 259, 264, 267
altar types, Roman, 164 n. 1
Amathus, 1 f., 6
Ambraciots, 103
Ammo/Dio, 331
Amphipolis, 5 f., 9, 12
Ampurias, 33
Amytos, 44
analysis, of the antoninianus, *see* COPE, LAWRENCE H.
Anastasius, 277
anchor, countermark on coins of Alexander, 14
Andronicus II, 244 f., 245
Andronicus III, 238 n. 245
Aṅgavijjā, 305 f.
Anglo-Saxon, coin style, 276 ff.
Angoulême mint, 347
Anisa, 23 n. 1
Anjanieri inscription, 295
Anjoulets hoard, 66
Anjoulets (Haute-Garonne) hoard, 43
Antesti, C., 85
Antigonus Gonatas, 12
Antioch, 13, 24 f.; billon coinage of the crusading principality at, 247 ff.; hoard of 'helmet' deniers, 258
Antiochus I, 13
Antiochus II, 13
Antiochus III, 13 f., 25
Antiochus IV, 14, 329
Antiochus VII, 329 f.
Antiochus VIII, 330
Antiochus IX, 10, 25
antoniniani, find of at Alcester, 123 ff.
antoninianus, value of, 129; its nadir in the reign of Claudius II Gothicus, 145 ff.; origins and striking process, 145 f.
Antoninus Pius, coins in Bletchley hoard, 118 ff.; coins found at Alcester, 127; coins in the Mattishall hoard, 129
Antony, M., coins in Bletchley hoard, 114
Apamea, 13
Aparānta, 292, 299
Aparāntādideśapati, 292
Aparāntamahīpāla, 299
Apellikon/Gorgias issues, 327, 328
Apollo, 19, 333
Aquilia Severa, coins in the Mattishall hoard, 134
Aquillius, M'., 96 ff.
Aquitani, the, 36, 45
Aquitania, 59
Aradus, 6, 8
'Arcadian' hemidrachms, 326
Archelaos, 332
Arda-mitra, coins of, 301 ff.
Ardeshir I, 302 f.
Ardha-Kākaṇi, 306

Ardha-Māṣaka, 306
Arecomici, 36 f., 68
Argaeus, Mt., 333
argentum Oscense, 83
Argos, 326, 332
Ariaramnes, 21 ff., 30
Ariarathes III, 22, 24, 30 f.
Ariarathes IV, 22 ff., 30 f.
Ariarathes IV or V, 23 ff.
Ariarathes V, 29 f.
Ariarathes VI, 26 ff.
Ariarathes VII, 26 ff.
Ariarathes VIII, 21, 27, 29, 31, 337
Ariarathes IX, 29 ff., 337
Ariège hoards, 36, 66
Aristoboulos, 10
Aristonicus, 27
Arles mint, 349
Arras hoard, 347 f.
Artemis, head of, on coins of Massalia, 46
Artemis Leukophryene, 103
Arthaśāstra, 306
Arverni, defeat of, 45, 62, 73
As, Iberian bronze, 44
Asalema sāhi, 308
asāragatra, 305
Asellus, 104
Asiagenes, L. scipio, 98
Askeaton hoard, 222
Aspendus, 11, 17
As, value recorded by Cato, 100
Athamanes, 103
Athena, 18 f.
Athenian tetradrachms, style of, 284
Athens 1, 12, 14, 325, 330, 335
Attalus II, 25 f.
Aude, 36, 68
Augustus, find at Timberland, 107, 109 f.
Augustus and Agrippa, cast copy, 164; coins in Tetelbierg hoard, 164
Aurelian, poor quality antoniniani 146 f., 160 f., 342
Avenio (Avignon), coins of, 56, 66
Aveyron hoards, 36, 63, 67
Avranches mint, 347
'Azbaal', 2, 20

'Baalmelek II', 2, 4
Baal-ram, king of Citium, 19
Babylon, 7 f.
Badian, Ernst, his dating for Narbo, 96
Baïse hoards, 36
Balbinus and Pupienus, coins in Mattishall hoard, 137
Balbus, L. Thorius, 80
Ballybrooney find, 227 ff.
Ballyholme find, 222
Bandyopadhyay, Samaresh, Nāṇaka, 305 ff.
barbarous coin styles, 283
Barbatius, M., 85
Barcids, 81
Barwani plate, 294
Bas Pyrénées hoard, 68
Bastogne mint, 347
Baudouin III, 248, 256
Beaumont-de-Lomagne hoard, 64
Bek, Bishop Anthony, 213
Belgium, coin hoards from, 340 f.
Belvès (Périgord) hoard, 53
Belvès hoard, 66 f.; types, 77
Benha hoard, 16
Berengar of Friuli, 348
Bergama (Turkish) find, 235, 238, 245
Bergerac hoard, 63
Berwick, mint, 272; capture of, 273
Betarris legend on coins of Béziers, 44 n. 4
Béziers (Hérault) hoard, 37, 39 f., 44, 49, 62 f., 68, 74 f.
'*Bhagavatpādakarmakara*', 292
Bhartṛdāmam, 295 ff.
Bhulunda, 293 f.
Biebrich hoard, 348
Bingen mint, 347
Bituitus, defeat of, 45
Bituriges Cubi, 37
Bituriges Vivisci, 37
Bivar, A. D. H., reviews M. V. Dev Mohan, *The Indo-Greek coins*, 354
Blas, P., 102 f., 104 f.
Blasio, P. Cornelius C. f., 103 f.
Blaye (Gironde) hoard, 43, 47, 50, 64, 73
Bletchley treasure trove of Roman Imperial denarii, 113 ff.
boar reverse, Celtic, 77
Boé find, 35, 41, 64
Bohemond II, 256
Bohemond III, 248 f., 253 ff.
Bombay find, 295
Bompas (Pyrénées-Orientales) hoard, 43, 45, 66, 73
Botecourte, John, 208
Bouches-du-Rhône hoard, 66
Brennus, 60
Breuvery hoard, 347
Bṛhatkalpabhāṣya, 307
Bridiers type, overstruck, 74
Bridiers (Creuze) hoard, 38 f., 62, 68
Bristol mint, dies of Edward I and II, 211 f.
Bruun, Patrick, Constantine's *dies imperii* and *quinquennalia* in the light of the early solidi of Trier, 177 ff.
bull, on coins of Paphus, 3
'bull' and 'altar' types, 298
Burdigalia (Bordeaux), 37

Burgred, 284
Bus-la-Mésière hoard, 165
Byblos, 7
Byzantine coin style, 277 f., 281 f.
Byzantine scyphates, eighteen of the late 1200s, 235 ff.

Cadours hoard, 67 f.
Cadurci, 37 f., 50, 54, 58, 76
Caepio, 97
Caesares, C. L., 85
Cahors hoard, 66
Calchedon, 12
Caligula, absent from Timberland hoard, 109
Calpurnius Piso, Cn., 104
Calvini, Cn. Domitii, 104
Canada coins, tokens, etc., 350 ff.
Cani Islands hoard, 97
Canterbury mint, dies of Edward I and II, 207 ff.; style, 282, 285
Capdenac (Lot) hoard, 41, 47, 49 f., 53, 64, 73
Cappadocian coins, the classification of, 21 ff.
Capraise (Dordogne) hoard, 38
Caracalla, coins in the Mattishall hoard, 131 f.; introduction of the antoninianus, 145
Carbo, C., 96 f.
Carbo, M., 87
Carcaso, 37
Carlisle mint, 272
Carloman of Bavaria, 349
Carolingian, coin style, 277, 281, 346 ff.
Carson, R. A. G., Alcester (Warwicks.) find of Roman antoniniani and sestertii, 123 ff.; Mattishall (Norfolk) treasure trove of Roman Imperial silver coins, 129 ff.; drawing of the pot, 141; Welwyn treasure trove of Roman Imperial denarii, 143 ff.; reviews Ludovico Brunetti, *Opus Monetale Cigoi*, 338 ff.; reviews Marcel Thirion, *Les Trésors monétaires gaulois et romains trouvés en Belgique*, 340 f.
Carthage, stipendium paid to Rome, 83
Cassi, C., 97
Castelnau-de-Lévis hoard, 67
Castelnau-sur-Auvignon (Gers) hoard, 47, 58 f., 67, 73
Castelnaudry (Aude) finds, 35
Castres (Tarn) find, 35, 54, 67, 73
Cato, M., 85
Cato, A. Porcius, 96
Cato, M. Porcius, 33
Cauzé hoard, 47 ff., 58, 64, 73
Cauzé Pinsaguel hoard, 50, 53, 56
Cauzé (Tarn-et-Garonne) hoard, 43
Celenderis hoard, 18
Celtiberian legends, 57
Celtic influence on coins of Rhoda, 35; German, 61
centenarii, 193
Cerco, Q. Lutatius, 80
Chaitya, 291
Chandragupta II, 294, 298
Chandravalli inscription, 299
Charlemagne, 277, 281
Charles I, find of English coin in Ireland, 232
Charles V, 310
Charles of Provence, 349
Charles the Bald, 347 ff.
Charles the Bold of Burgundy, double patard found at Connacht, 221 f.
Charles the Simple, 348
Château-Thierry mint, 280
Chattopadhyaya, B. D., Dates of the Traikūṭaka kings of western Daccan and of their coins, 291 ff.
Chester mint, dies of Edward I and II, 211 f.
Chinon mint, 347
Chios, 11, 14
Cigoi forgeries, 338 ff.
Cimbri, the, 45, 73, 79, 96
Cipi M. f., M., 85
Citium, 1 f., 6
Cius, 12
Claudius, analyses of Alexandrian tetradrachms of, 317 f.; find at Timberland, 107, 109 f.
Claudius, Ti, 104
Claudius I, a false denarius, 313 ff.
Claudius II, coins in Welwyn T.T., 143; the nadir of the Imperial antoninianus in the reign of, 145 ff.; coins in Tetelbierg hoard, 164
Clayton, Peter A., Bibliography of articles from non-numismatic journals, 319 ff.
Clodius Albinus, coins in the Mattishall hoard, 130
Cloonsharragh hoard, 222
C·MINI, 85
Cnut, stylistic groupings, 280
Coenwulf of Mercia, coin style, 282
Cologne mint, 280
Colonia Nemausus, cast copy As of Augustus and Agrippa, 164
Commodus, coins in Bletchley hoard, 122; coins found at Alcester, 128; coins in the Mattishall hoard, 130, 342
Condé mint, 347
Condom hoard, 51, 63, 67
Connacht (North), an early sixteenth-century find, 219 ff.

Conrad the Pacific, 348
Conrad I, 349
Constance, 256
Constantia, 183, 199
Constantine I, his *dies imperii* and *quinquennalia* in the light of the early solidi of Trier, 177 ff.
Constantine IX, 244
Constantinople, 235
Contrebia, 84
COPE, LAWRENCE H., The nadir of the Imperial antoninianus in the reign of Claudius II Gothicus, A.D. 268–270, 145 ff.; the material assayed 147 ff.; the fineness of the coinage, 149 ff.; alloy compositions of antoniniani minted at Rome for Claudius II, 150; comparison of the composition of an exceptional alloy minted at Rome with typical antoninianus alloys minted at Milan for Claudius II, 152; chemical analysis of a consecration antoninianus issued after the death of Claudius II, compared with the coinage of Quintillus, 153; chemical analyses of irregular and imitation antoniniani attributed to Claudius II and Divus Claudius, 155; base-metal constituents of the coinage alloys, 156 ff.; the microstructures of the coinage alloys, 158 f.; the sequence of issues from the mint of Rome, 159 f.; the dating of the first consecration issues, 160
Cordova hoard, 79 f., 81 ff.; jewellery from, 85 f.; discrepancies in the number of coins recorded in the find, 85 f.; Roman pieces belonging to, 87 ff.
Corinth, 18, 105, 326 f.
Corinthian coin style, 284
Cormes mint, 279
Cotta, C., 98
Cotta, C. Aurelius, 84
Cotta, L., 98
Cotta, M., 99
Courbantion III, 348
Couvin mint, 347
Covertomotul, legend, 57, 78
Covra Anteios, legend, 58
Cox hoard, 68
Crassus, L., 95, 97
CRAWFORD, M. H., The financial organization of Republican Spain, 79 ff.; Bletchley Treasure Trove of Roman Imperial denarii, 113 ff.
Cressendac/Martel hoard, 66
Crispina, coins in Bletchley hoard, 122
crockards, 213 f.
Crusaders, billon coinage of the crusading principality at Antioch, 247 ff.
Cuenca hoard, 63
cuneorum, interpreted, 207
cuneus, interpreted, 207
Curciaco, 279
Curio, C. Scribonius, 99
Curvus, M. Titinius, 104
Cuzance (Lot) hoard, 50, 51, 66, 73, 76
Cyme, 13 f.
Cyprus, find, 1 ff., 333

Dahrasena, 291 ff.
Dali hoards of 1869, 1 ff.
Daman find, 292
Danegeld, 269
David I (Scotland), 272
David II sterlings, 288
Deccan (Western), Traikūṭaka kings of, 291 ff.
Delos hoard, 100, 332, 327 f.
Delphi, Gaulish booty from, 60
Demanhur hoard, 16
Demetrios II, 330
denarii, Republican, 79
denarius, value recorded by Cato, 100
Dertona, colony, 95
dies, under Edward I and II, 207 ff.; and style in coinage, 275 f., 283
dies imperii, 177 ff.
dies Solis, 180
Dinant mint, 280
Dīnāra, 306
Diocletian, 182, 342
Diokles of Kephisia, 328
Dipylon hoard, 327
DISCITE IVSTITIAM MONITI, 312
Diva Faustina, coins in Bletchley hoard, 119 ff.
Divus Antoninus, coins in Bletchley hoard, 121
Divus Vespasianus, coins in Bletchley hoard, 115 f.
DOLLEY, MICHAEL, and GALLAGHER, COLM, Four notes on unpublished Irish finds of the sixteenth and seventeenth centuries:—an early sixteenth-century coin-find from North Connacht, 219 ff.; two finds of coins of Henry VIII, 223 ff.; a late Tudor coin-hoard from Co. Mayo, 227 ff.; an eleven years' war coin-hoard from the right bank of the Shannon, 230 ff.
DOLLEY, MICHAEL, and MALCOLM TODD, The Roman coin-hoard from Timberland (Lincs.): a revision, 107 ff.
Dolphin types, Celtic, 75
Dom, Cn., 95, 97 f.

dominick groats, 224 f., 228
Domitian, coins in Bletchley hoard, 115
Domitius Ahenobarbus, Cn., 104
Dordogne hoards, 36 f., 63, 67
Dortmund mint, 272
Dossen, L. Rubri, 85
Dove, on coins of Paphus, 3
Co. Down hoard, 222
Drama hoard, 9
Drieves (Guadalajara) hoard, 40, 62 ff., 68
Drudas (Haute-Garonne) hoard, 51, 67
Dublin groat, 220
Ducas, Manuel Angelus Comnenus, 237
ducenarius, 193
Durham mint, dies of Edward I and II, 207 f., 210, 212 ff.
Duurstede deniers, 281
Dyme, 326

Eadhun, 277
Ealraed, 277
Eauze, 59
Eckeren hoard, 347
Ecornabœuf hoard, 53, 56
Edward I, coin dies under, 207 ff.; coin style, 281 f.
Edward I, capture of Berwick, 273
Edward II, visit to Berwick, 273, 286
Edward IV, Irish and English coins from Connacht, 219 f., 286
Eis hoard, 61
Elagabalus, coins in the Mattishall hoard, 133 f.
Elis, 325 f.
Elizabeth I, finds of English coins in Ireland, 229 ff.
Elusates, the, 47, 59, 67
Emporiae find, 81
Emporion, 35, 38, 44, 46, 57 f.
Emporitan bronze coins, 81
Ensérune find, 44, 47, 50, 53
Entremont, 101, 105
Epigenes, 329
Epirus, 237
Estinnes mint, 347
Ethelred II, Scandinavian copies, 269 ff.; stylistic groupings, 280; second hand type, origin, 283 f.
Eumenes II, 13
Euphemos, 103
Eurymedon, battle of, 19
Evreux hoard, 165
Exeter mint, dies of Edward I and II, 211 f.
Eymet hoard, 63

Fan, C. f., M., 87
'fan' type, Celtic, 77
Fausta, 177 f.
Faustina I, coins found at Alcester, 127; coins in the Mattishall hoard, 130
Faustina II, coins in Bletchley hoard, 120 f.; coins found at Alcester, 127
Fécamp hoard, 288
Fenestella, 101
Ferre, Guy, 208
Figeac hoard, 64
FINDS: Afghanistan, 302; Agen hoard, 64, 68; Agout, 36; Agrinion hoard, 95, 98, 104, 325 ff.; Aiguillon hoard, 68; Ain Tab hoard, 14; Albi hoard, 66; Albi (Tarn), 57; Aleppo hoard, 248 f., 258 f., 261, 263 f.; Alesia, 50; Alise St. Reine, 49; Almina (Antioch) hoard, 257, 259, 264, 267; Anjoulets hoard, 43, 66; Antioch hoards, 258, 260; Ardamitra, 301 ff.; Ariège, 36, 66; Arras hoard, 367 f.; Askeaton hoard, 222; Aude hoard, 67; Aveyron, 36, 63, 67; Baïse hoards, 36; Ballybrooney, 227 ff.; Ballyholme, 222; Bas Pyrénées hoard, 68; Beaumont-de-Lomagne hoard, 64; Beaumont-sur-Lèze, 66; Belvès (Périgord) hoard, 53, 66 f.; Benha hoard, 16; Bergama (Turkish), 235, 238, 245; Bergerac hoard, 63; Béziers hoard, 39 f., 49, 62 f., 68, 74 f.; Biebrich, 348; Blaye hoard, 43, 47, 50, 64, 73; Boé hoard, 35, 41, 64; Bompas (Pyrénées-Orientales) hoard, 43, 45, 66, 73; Bombay, 295; Bouches-du-Rhône hoard, 66; Breuvery hoard, 347; Bridiers (Creuze) hoard, 38 f., 62, 68; Bus-la-Mésière hoard, 165; Cadours hoard, 67 f.; Cahors hoard, 66; Cani Islands hoard, 97; Capdenac (Lot) hoard, 41, 47, 49 f., 53, 64, 73; Capraise (Dordogne) hoard, 38; Castelnau-de-Lévis hoard, 67; Castelnau-sur-Auvignon hoard, 58 f., 67, 73; Castelnau-sur-Auvignon (Gers) hoard, 47; Castelnaudry (Aude), 35; Castres (Tarn) hoard, 35, 54, 67, 73; Cauzé hoard, 47 ff., 58, 64, 73; Celenderis hoard, 18; Cloonsharragh hoard, 222; Condon hoard, 51, 63, 67; Connacht (North), 219 ff.; Cordova hoard, 79 f., 81 f.; Cox hoard, 68; Cressendac/Martel hoard, 66; Cuenca hoard, 63; Cuzance hoard, 50 f., 66, 73, 76; Cyprus, 1 ff.; Dali hoards of 1869, 1 ff.; Daman, 292; Delos hoard, 327 f., 332; Demanhur hoard, 16; Dipylon hoard, 327; Dordogne hoard,

FINDS (*cont.*):
36, 63, 67; Down, Co., 222; Drama hoard, 9; Drieves hoard, 40, 62 ff.; Drudas (Haute-Garonne) hoard, 51, 67; Eckeren hoard, 347; Ecornabœuf hoard, 53, 56; Eis hoard, 61; Emporiae, 81; Ensérune, 44, 47; Evreux hoard, 165; Eymet hoard, 63; Fécamp hoard, 288; Figeac hoard, 64; Foix (Ariège), 35; Gard, 47, 66, 68; Garric hoard, 66; Gers hoard, 58 f., 63, 67; Gimone, 36; Gironde hoard, 64; Gordion hoard, 337; Gourdon hoard, 63; Goutrens (Aveyron) hoard, 54, 56, 67, 73; Gurina hoard, 61; Ham Hill hoard, 109; Haute-Garonne hoard, 66, 67 f.; Herault, 47, 63, 66, 67; Idalium (Cyprus), 1 ff.; Ilanz hoard, 277; Île-de-Noe (Gers) hoard, 41, 43, 47, 51, 63, 73; Imphy hoard, 348; Izeste hoard, 68; Johnston's Bridge (Dromod), 219; Kamrej, 292; Kanheri, 291 f.; Karad hoard, 296; Karhad, 292; Kazad, 292; Kessab hoard, 259, 329 ff.; Kilgorman hoard, 222; Kirmington hoard, 110; Krinkberg hoard, 281; Labrugière (Tarn), 35; Lacco Ameno hoard, 97; La Crousatié hoard, 54, 73; Ladern hoard, 67; La Fajolle (Hérault) hoard, 54, 56, 62, 73; La Gasse (Aveyron) hoard, 41, 63; La Lagaste (Aude), 44; La Loubière (Aveyron) hoard, 41, 43, 63 f., 68; Lamadelaine (Luxembourg) hoard, 163 ff.; Larnaca hoards, 4 f.; Latakia hoard, 14, 249, 260; Lattes (Hérault) hoard, 41, 43, 47, 57, 66; Lattes Tour hoard, 73; Laujuzon hoard, 58; La Vinense hoard, 165; Lestrade (Dordogne) hoard, 38, 63, 68; Lodève (Hérault) hoard, 54, 67, 73; Loiret hoard, 67; Lot, 36, 64, 66; Lot-et-Garonne hoard, 68; Luzech (Lot) hoard, 43, 50, 66; Madrid, 85 f.; Maeander Valley hoard (1895), 9 f.; Magne hoard, 73; Malville hoard, 63; Mancier hoard, 58; Manciet hoard, 59, 67; Martiel (Aveyron) hoard, 41, 63; Martigues hoard, 66; Masera hoard, 97 f.; Maski, 292; Mattishall (Norfolk) treasure trove, 129 ff.; Co. Mayo, 227 ff.; Mèze hoard, 67, 73; Mèze (Hérault) hoard, 43, 54, 56; Mirande hoard, 51, 63; Mirande/Condom hoard, 47, 73; Monastruc hoard, 68; Moncrabeau hoard, 68; Montargis hoard, 67, 73; Montauban hoard, 50; Montlaurès (Narbonne), 44; Montpellier hoard, 67; Montrave hoard, 211 f.; Montredon-Labessonié hoard, 67; Morgantina, 105; Mouleydier hoard, 63; Moussan hoard 68; Muret hoard, 66; Nages (Gard), 47; Naqs-i-rustom, 303; Narbonne hoard, 68; Nasik, 295; Nérae hoard, 68; Nîmes 66; Numantia, 81; Oloron hoard, 68; Pammiers (Ariège), 33, 43, 50, 53, 66, 73; Panillac hoard, 64; Paulhe (Tarn) hoard, 43, 54, 56, 67; Périgueux, 53; Pilligerheck, 348; Pinsagnel hoard, 43, 66; Piraens hoard, 327; Pisanguel (Haute-Garonne) hoard, 47; Pomas hoard, 67; Riccia hoard, 97 f.; Rigby hoard, 110; Rodez hoard, 67; Rome hoard, 97; Ross, 223; Rouquette hoard, 39, 63, 68; St. Capraise hoard, 63, 68; St. Étienne-des-Landes hoard, 41, 43, 47, 49, 53, 57, 63 f., 73; St. Jean-de-Verges, 47; St. Jean-de-Verges (Ariège) hoard, 44; St. Mard I hoard, 165; St. Mard II hoard, 165; St. Médard-de-Guizières (Gironde) hoard, 38; St. Omer, Pas-de-Calais, 59; St. Pons (Hérault), 44; St. Remy hoard, 66; St. Sauveur hoard, 43, 47, 64 f., 73; Salonika (*c.* 1918), 8 f.; Salsette, 295; Samos hoard, 256, 259; Sanand treasure, 295; Sarlar hoard, 63, 67; Sauve hoard, 68; S. Giovanni hoard, 92 f., 332; Shannon find, 230 f.; Side hoard, 18; Slaghter, 230 ff.; Stradonitz, 61; Tarn, 36, 66 f.; Tarn-et-Garonne, 64; Tetelbierg hoard, 163 ff.; Timberland (Lincs.) hoard, 107 ff.; Tour-Magne (Gard) hoard, 47, 66; Tour-Magne, Nîmes hoard, 41; Trap (Tarn) hoard, 47, 66; Tripolis hoard, 257, 259; Turkestan, 302; Urfa hoard (1924), 10; Uzech-les-Oules hoard, 35, 63, 68, 74; Valera hoard, 62, 63 f., 68; Valera (Cuenca), 40; Vaucluse, 47; Verulamium theatre hoard, 165; Vigar hoard, 68; Villefranche-de-Rouerge, 63; Vouni treasure, 4; Welwyn T.T., 143 ff.
fitz-Otto, Thomas, 208
Flaccus, L. Valerius, 96 ff.
Flamininus, 100
Foix (Ariège) find, 35
Fox collection, 5
Fregellae, capture of, 332
Frisian imitative solidi, 284

Gadhia, 296

Galatia, 60
Galba, coins in Bletchley hoard, 114
Galeria Valeria, 183
Galerius, 180, 182 f., 195
Gallia Aquitania, 36
Gallia Celtica, 35
Gallia Narbonensis, 45
Gallienus, coins found at Alcester, 126; coins in the Mattishall hoard, 140; coins in Welwyn T.T., 143; unsilvered antoniniani, 145 f., 149, 151, 154, 157, 341
Ganda inscription, 293
Gard find, 47, 66, 68
Gare (Truro, Cornwall) hoard, 124
Garonne hoards of monnaies-à-la-croix, 36
Garric hoard, 66
Gers hoard, 58 f., 63, 67
Geta, coins in the Mattishall hoard, 132 f.
Gimone hoards, 36
Gironde, 35 f.; hoard, 64
Gondophanes II, 301
Gonzaga, Gian Francesco I, 310
Gonzaga, Federico II, 310
Gonzagas, a numismatic approach to the iconography of several Gonzagan fresco cycles, 309 ff.
Gordian II, coins in the Mattishall hoard, 137
Gordian III, coins found at Alcester, 124; coins in Mattishall hoard, 137 f.; coins in Welwyn T.T., 143, 304
Gordion hoard, 337
Gourdon hoard, 63
Goutrens (Aveyron) hoard, 54, 56, 67, 73
Gracchus, C., 97, 99
GRIERSON, PHILIP, reviews Karl F. Morrison, *Carolingian coinage*, 346 ff.
Grimoald III, 349
Guptas, 294 f., 298
Gurina hoard, 61
Guy of Spoleto, 348

Hadrian, coins in Bletchley hoard, 117 f.; coins found at Alcester, 127
Halstatt era, 36
Ham Hill hoard, 109
'Harp' issues of Henry VIII, found in Ireland, 224 ff.
Haute-Garonne hoard, 67 f.
Helios, head of, as countermark on coins of Alexander, 14
Hellenic coinages, style periods, 274
Helvins, M., 82 f.
Hema-Nāṇaka, 307
Hengist coinage, 276
Henry VII, English coins found at Connacht, 220; Dublin groat from Connacht find, 220; coin style, 282
Henry VIII, English coins found at Connacht, 221; finds of English and Irish coins in Ireland, 223 ff.
Heraclea Trachinia, 325 f.
Heraclius, 281
Herakleia, 10
Herakles, 2 f.
Hérault hoard, 36 f., 47, 63, 66 f.
Herculius, 182
Herennius, M., 80
Hispania Citerior, 82 ff.
Hispania, Ulterior, 82 ff.
HOARDS *see* FINDS
Holleaux, 103
Horsa coinage, 276
Hull mint, dies of Edward I and II 208, 210, 211 f., 214
Huy mint, 280, 347

Icalgusken, mint of, 82
Icalosken, mint of, 82
Idalium (Cyprus) find, 1 ff.
Ilanz hoard, 277
Île-de-Noé hoard, 41, 43, 47, 51, 63, 73
Imitative issues of medieval European coins, 284
imperium maius, 179 f.
Imphy hoard, 348
Inchiquin, 232
Indo-Greek coins, 354 f.
Indore plate, 293 f.
Indradatta, Maliārāja, 291 f., 298
Ireland, four notes on unpublished Irish finds of the sixteenth and seventeenth centuries, 219 ff.
Islamic coins, 353 f.
Izeste hoard, 68

JACKSON, ANNE E., reviews *SNG* IV: *Fitzwilliam Museum*, Part VII, Asia Minor, 333 ff.
James, find of English coins in Ireland, 232
JAMESON, SHELAGH, reviews C. M. Kraay and G. K. Jenkins, *Essays in Greek Coinage Presented to Stanley Robinson*, 334 ff.
Jīvadāman, 296
John III, 239
John VIII Palaeologus, 355 ff.
JOHNSON, W. MCALLISTER, A numismatic approach to the iconography of several Gonzagan fresco cycles, 309 ff.
Johnston's Bridge (Dromod) find, 219
Jublains mint, 279

Julia Domna, coins in the Mattishall hoard, 131; coins in Welwyn T.T., 143
Julia Maesa, coins in the Mattishall hoard, 134
Julia Mamaea, coin found at Alcester, 128
Julia Paula, coins in the Mattishall hoard, 134
Julia Soaemias, coins in the Mattishall hoard, 134
Junagad inscription, 293
Justinian, coin style, 281

Kadamba, 299
Kadphises, 305
Kaiantolos, 44
Kākanī, 306
Kalachuri-Chedi, 292 f.
Kalachuri Kṛṣṇarāja, 295
Kaletedou, 67, 73
Kālidāsa, 299
Kamara Gupta, 295
Kamrej find, 292
Kanheri find, 291 f.
Kanheri plates, 292 f.
Karad hoard, 296 f.
Karaichos, 329
Karhad find, 292
Kathiawar, 294
Kazad find, 292
Kerbogha, 247
Kerekontona, 57
Kerman, 303
Kessab hoard, 259, 329 ff.
Kilgorman hoard, 222
Kingston-on-Hull, *see* Hull mint
Kirmington hoard, 110
Kos, *diskoboloi*, 336
KRAAY, COLIN M., Notes on the mint of Side in the fifth century B.C., 15 ff.
Krinkberg hoard, 281
Kṣatrapa silver coins, 291 ff.
Kṣatrapa Visvasena, 296
Kṣatrapas, 294 ff.
Kumāragupta, 298
Kuṣānas, 305 f.

Labrugière (Tarn) find, 35
Lacco Ameno hoard, 97
La Crousatié hoard, 54, 67, 73
Ladern hoard, 67
Laetitia, 167
La Fajolle hoard, 54, 56, 67, 73
La Gasse (Aveyron) hoard, 41, 63
La Lagaste (Aude) find, 44
La Loubière hoard, 41, 43 f., 63, 64, 68
Lamadelaine (Luxembourg) hoard, 163 ff.
Lampsacus, 5 f., 11 f.
Laodiceia, 10, 13
Laon mint, 280
Lapethus, 1
Larnaca hoards, 4 f.
Latakia hoard, 14, 249, 260
La Tène, 36
Lattes hoard, 41, 43, 47, 57, 66, 73
Laujuzon hoard, 58
Lauterach (Vorarlberg), 61
La Vineuse hoard, 165
Le Mans, deniers of, 288
Lemovices, 56, 67
Lens mint, 347 f.
Leo III, 348
Leofthegn, 289
Leoni, Leone, 312
Leovigild mints, 277
Lestrade hoard, 38, 63, 68
Levon I, 256 f.
Licinius, 181, 183, 194, 197, 205
Licinus, L. Porcius, 96
Limoges mint, 347
Lodève hoard, 54, 67, 73
Loiret hoard, 67
London mint, dies of Edward I and II, 207 ff.; coin style, 282
Longostaletes, 44
Lot hoards, 36 f., 64, 66, 68
Lothaire I, 349
Lothaire II, 348 f.
Louis II, 347, 349
Louis of Saxony, 349
Louis the Blind, 348 f.
Louis the Child, 349
Louis the German, 349
Louis the Pious, 281, 284, 346, 349 f.
Lucilla, coins in Bletchley hoard, 121; coins found at Alcester, 127
Lucius Verus, coins in Bletchley hoard, 121; coins found at Alcester, 127; forgery, 128
Lucterios, 51, 57, 66, 73
Luzech finds, 43, 50, 66
Lycia, 6, 19, 333 ff.
Lydia, 31
Lyons mint, 349
Lysimachus, 12

Maastricht mint, 280
MACDONALD, D. J., A false denarius of Claudius I, 313 ff.
Macrinus, coins in the Mattishall hoard, 133
Madrid finds, 85 ff.
Maeander Valley hoard (1895), 9 f.
Maedi, 332
Magne hoard, 73
Magnesia, 5 f., 9, 11 f., 103
Maiani, C., 85
Mainz, 277, 280, 347, 349
Malleolus, C., 80

Malville hoard, 63
Manciet hoard, 58 f., 67
Mancinus, C. Hostilius, 81
Mantineia, 326
Manuel II, 286
Manuel Angelus Comnenus Ducas, 237
Marcus Aurelius, coins in Bletchley hoard, 120 f.; coins found at Alcester, 127
Martiel (Aveyron) hoard, 41, 57, 63
Martigues hoard, 66
Maserà hoard, 97 f.
Maski find, 292
Massalia, coins of, 46; obols, 50, 60 f., 66
MATE, MAVIS, Coin dies under Edward I and II, 207 ff.
MATTINGLY, HAROLD B., Notes on some Roman Republican moneyers, 95 ff.; reviews Margaret Thompson, *The Agrinion Hoard*, 325 ff.
Mattishall (Norfolk) treasure trove, 129 ff.
Maxentius, 182, 200
Maximian, 177 f., 196
Maximinus, coins in the Mattishall hoard, 136, 181, 197, 205
Maximinus Daza, 182 f., 194 f., 199
Mayo Co., find, 227 ff.
Melle mint, 281, 347
Melun mint, 347
Merovingian, coin style, 279 ff.
METCALF, D. M., Billon coinage of the crusading principality at Antioch, 247 ff.; list of hoards, 258 ff.; catalogue and notes, 261 ff.
Metellus, L., 84 f., 98
Metz mint, 280, 312
Mèze hoard, 43, 54, 56, 67, 73
Michael VIII, 237 ff.
Miletus, 6, 10, 11
Milvian Bridge, battle of, 200
Minims, Celtic, 43, 49, 78
Minucius Q. f., Q., 104
Minucius Q. f. Rufus, M., 104
Mirande hoard, 51, 63
Mirande/Condom hoard, 47, 73
MITCHELL, HELEN W., reviews E. von Zambaur, *Die Münzprägungen der Islams* I. Band, 353 f.
MITCHINER, MICHAEL, A small hoard containing coins of Arda-Mitra, 301 ff.
Mithradates, 84
Mithradates VI, 28, 327 f.
Monastruc hoard, 68
Moncrabeau hoard, 68
Montargis hoard, 67, 73
Montauban hoard, 50
Montlaurès (nr. Narbonne) finds, 44
Montpellier hoard, 67
Montrave hoard, 211 f.
Montredon-Labessonié hoard, 67
Morgantina find, 105
MØRKHOLM, OTTO, The classification of Cappadocian coins, 21 ff.
Mouleydier hoard, 63
Moussan hoard, 68
Mouzon mint, 280
Mummius, L., 102
Murena, L. Licinius, 102, 104 f.
Muret hoard, 66
Mylasa, 9, 103
Mytilene, 10

Nages, potin coins of, 47 ff.
Nages (Gard) finds, 47
Namur mint, 280
Nāṇaka, 305 ff.
Naqs-i-rustam find, 303
Narbo, colony of, 45 f., 73, 95; moneyers, 95
Narbonne, 37, 68
Nasik find, 295
Nemansus (Nîmes), 37, 49
Nérae hoard, 68
Nero, coins in Bletchley hoard, 114; analyses of Alexandrian tetradrachms, 317 f.
Nerva, coins in Bletchley hoard, 116
Newcastle mint, dies of Edward I and II, 208, 211 f.
Nicaea, 235, 239
Nîmes hoard, 57, 66
Nisibis, 13
Nitiobroges, 37 f., 53 f., 58, 76
Nobilior, Q. Fulvius, 102
Northfleet (Kent) hoard, 124
Numantia, Republican camps, 79 ff., finds, 81, 102, 104 f.

obols, Celtic, 43; of Massalia, 50 f., 60 f., 78
Offa, stylistic analysis, 277, 283, 288
Oloron hoard, 68
Orophernes, 25, 30
Osca, 57, 79, 82 f.
Oscense, argentum, 83
Ostia, 200
Otacilia Severa, coins in Welwyn T.T., 143
Otto III, 272
Oudwoude hoard, 347

Pakores, 301
Palaeologus, John VIII, 355 ff.
Pammiers hoard, 33, 43, 50, 53, 66, 73
Pamphylia, 6, 19
Panillac hoard, 64

Paphos, 1, 3, 337
Pardi plates, 291, 293, 297
Paulhe hoard, 43, 54, 56, 67
Pella, 12
Pepin I/II, 349
Pergamum, 13
Perge, 11
Périgueux find, 53
Perperna, 84
Pertinax, coin found at Alcester, 128
Petrocorii, 38 f., 53 f., 58, 76
Phaselis, overstrikes on coins of, 15 f.
Philip I, coins in the Mattishall hoard, 138; coins in Welwyn T.T., 143
Philip II, coins of, 5, 8 ff.; coins found at Alcester, 124
Philip III, coins of, 8
piles, 208, 213
Pilligerheck hoard, 348
Pinsaguel hoard, 43, 47, 66, 73
Piraeus hoard, 327
Pisanello, 355 ff.
Piso, Cn. Calpurnius, 104
Plautilla, coin in the Mattishall hoard, 132
Poitou, 38 f.
POLLARD, J. G., reviews R. Weiss, *Pisanello's medallion of the Emperor John VIII Palaeologus*, 355 ff.
Pomas hoard, 67
Postumius, C., 84
Postumus, 151; coins found at Alcester, 126 ff.; coin found at Alcester, 128; coins in the Mattishall hoard, 140; coins in Welwyn T.T., 144; bronze coinage, 341 ff.
potin coins of Nages, 47 n. 1
Praeconinus, L. Valerius, 45
PRICE, M. JESSOP, Greek coin hoards in the British Museum, 1 ff.
Priene, 103
Probus, coins in Tetelbierg hoard, 164; copy, 164
Prusias I, 13
Pulcher, C. Claudius, 96 ff.
Pupienus, coins in Mattishall hoard, 137
Puteoli, 95

quadrantes, 102
quinarii, value recorded by Cato, 100 f.
quinquennalia, 177 ff.
Quintillus, 151, 154, 157 f., 160; coin in Welwyn T.T., 144

Radiates, barbarous, found at Tetelbierg, 163 ff.
Rauchomaros, moneyer, 280
Raymond de Poitiers, 248 ff.
Raymond-Roupen, 257 ff., 265
REECE, RICHARD, Analyses of some early imperial Alexandrian tetradrachms, 317 f.
Renaissance medals, 309 ff., 355 ff.
Renaud de Chatillon, 248, 256
Reni, C., 87
Renieblas, 102, 104 f.
Rhoda, 33, 35, 39, 41, 46; imitations, 63, 68, 74
Rhodes, 10, 333
Riccia hoard, 97 f.
Richard II, York pence, 273, 279
Rigby hoard, 110
Robert I (France), 348
Robert III (Scotland), 284
Rodez hoard, 37, 67
Roger of Antioch, 286
Roman Republic, the financial organization of Spain, 79 ff.; pieces belonging to the Cordova hoard, 87 ff.; notes on some moneyers, 95 ff.
Rome hoard, 97
Ross find, 223
Rouen, deniers of, 288
Rouquette (nr. Eymet) hoard, 39, 63, 68
Rouzaud collection, 44
Roxburgh mint, 272
Ruan mint, 279
Rudolph III, 348
Rudradāman II, 296, 298
Rudrasena III, 293, 296 ff.
Rudrasiṁha I, 293
Rudrasiṁha II, 296 f.
Rudrasiṁha III, 298
Rufus, Annius, 97 ff.
Rufus, M. Minucius Q. f. 104
Rufus, P. Rutilius, 98
Ruteni, 37 f., 45, 51, 54, 57 f., 73
Rutilius, P., 98

Sabina, coins in Bletchley hoard, 118
St. Capraise hoard, 63, 68
St. Demetrius, 237
St. Étienne-des-Landes hoard, 41, 43, 47, 49, 53, 57, 63 f., 73
S. Giovanni hoard, 97 f., 332
St. Jean-de-Verges (Ariège) hoard, 44, 47, 73
St. Mard I hoard, 165
St. Mard II hoard, 165
St. Médard-de-Guizières (Gironde) hoard, 38
St. Michael type scyphate, 238, 241 ff.
St. Nicholas type scyphate, 242, 244
St. Omer, Pas-de-Calais find, 59
St. Pons (Hérault) find, 44
St. Remy hoard, 66
St. Sauveur hoard, 43, 47, 50, 64 f., 73
Saint-Trond mint, 347

Śaka era, 298 f.
Salamis, 1, 4, 6
Salisbury mint, 272
Salonika (*c.* 1918) find, 8 f.
Salonina, coin in Welwyn T.T., 143; coins found at Alcester, 126
Saloninus, coins found at Alcester, 126; coin in Welwyn T.T., 143
Salsette find, 295
Samos hoard, 256, 259
Sanand treasure, 295
de Sandale, John, 208, 210, 212
de Sandale, Robert, 208
Sardes, 6, 11 f.
Sarlat hoard, 63, 67
Saturninus, 97
Sauve hoard, 68
Sax, C., overstruck issues with a star, 102, 104
Saxo-Bacio mint, 280
Saxula, C. Cluvius, 105
Scandinavian copies of coins of Ethelred II, 269 ff.
Scaurus, M. Aurelius, 96 ff.
Scipio, L., 100
Scribonius, C., 99
Scyphates, 235 ff.
SEALY, D. L. F., reviews J. E. Charlton, *1969 Standard Catalogue of Canadian Coins Tokens and Paper Money*, 350 ff.; reviews Burton Hobson, *Getting started in Coin Collecting*, 352 f.
Seleuceia, 13
Seleucia Pieria, 247
Seleucus II, 13
Seleucus III, 13
Seleucus IV, 14, 24
Septimius Severus, coins in the Mattishall hoard, 130 f.; coins in Welwyn T.T., 143
Sertorian War, 45
Sertorius, 45, 84
Serveili M. f. C. 101
sestertii, find at Alcester, 123 ff.
sestertius, value recorded by Cato, 100 f.
Severus Alexander, coins in the Mattishall hoard, 135 f.; coins in Welwyn T.T., 143; interesting forgery, 142
Shannon find, 230 ff.
Shapur I, 302 ff.
Short Cross coinage, 285
Sicily (West) hoard, 97
Side, notes on the mint of, in the fifth century B.C., 15 ff.
Sidon, 7 f.
Sigismund, Emperor, 310 f.
Silanus, M., 99
Silanus, M. Junius, 97
Sirmium, 161
Skandagupta, 298
Slaghter find, 230 ff.
Smyrna, 12
Sogdiana, 303
Soissons mint, 280
Soli, mint of, 25
Sotiates, the, 59, 67
Spain, the financial organization of Republican, 79 ff.
Speyer mint, 280
Stephen and Civil War period, coin style, 286
STEWART, IAN, Style in medieval coinage, 269 ff.
Stradonitz finds, 61
Strasbourg mint, 280
Style in medieval coinage, 269 ff.
Surat plates, 291 ff.
Susa, 7 f., 13
Syracuse, electrum coinage, 337

Tarbelli, the, 59
Tarn, 37
Tarn hoards, 36, 64, 66 f.
Tarraco, 44
Tarsus, 6, 13
Taxila, 355
Tectosages, 36 ff., 60
Temnos, 11
Tenedos, 12
Teos, 5 f., 9, 11
Tetelbierg hoard, 163 ff.
Tetricus I, coins in Tetelbierg hoard, 164
Tetricus II, coins in Tetelbierg hoard, 164
Teutones, the, 45, 73, 79
Thebes, 6
Theodore I, 235
Theodore II, 235
Theophilus, style of the folles of, 277 f.
Thérouanne mint, 347
Thessalonica, 235, 237
Tiberius, find at Timberland, 107, 109
Timberland (Lincs.) hoard, 107 ff.
Titinius, M., 104, 105
Titus, coins in Bletchley hoard, 115
Tolistoboii, 60
Tolosa (Vieille Toulouse), 37, 44; sack of, 45, 59, 62
Tolosates, 37 f., 45, 50 f., 58, 60, 68, 75
Toul mint, 280
Tour-Magne hoard, 41, 47, 66
Tournai mint, 347
Traikūṭaka kings, dates of the, of western Deccan and of their coins, 291 ff.
Trajan, coins in Bletchley hoard, 116 f.; coins found at Alcester, 127

Trajan Decius, coins found at Alcester, 125; coins in the Mattishall hoard, 139
Trap hoards, 47, 66
Trebonianus Gallus, coins found at Alcester, 125; and Volusian, coins in the Mattishall hoard, 139
Trier, 200; earliest solidi of, 181, 184
Trikūṭa, 292, 299
Tripolis hoard, 257, 259
trussels, 208, 213
Tubulus, L. Hostilius, 80
Tuditanus, C. Sempronius, 82, 102
Turkestan find, 302
Tyre, 7 f.

Urfa hoard (1924), 10
Uxellodunum, 37, 51
Uzech hoard, 68, 74
Uzech-les-Oules hoard, 35, 63
Uzès mint, 347

Valera hoard, 62 ff., 68
Valera (Cuenca) find, 40
Valerian I, coins found at Alcester, 125; coin in Welwyn T.T., 143
Valerian II, coins found at Alcester, 126; coin in Welwyn T.T., 143
Varro, A. Terentius, 102
Vasu Deva Kuskan, 304
Vaucluse find, 47
Vedrin mint, 347
Verdun mint, 280
Verulamium theatre hoard, 165
Vespasian, coins in Bletchley hoard, 114 f.; analyses of Alexandrian tetradrachms, 317 f.
Victoriatus, Iberian, 85, 87; Republican, 79
Victorinus, 154; coins in Welwyn T.T., 144; coins in Tetelbierg hoard, 164, 166
Vienne mint, 349
Vigar hoard, 68
Visé mint, 347
Vitellius, coins in Bletchley hoard, 114
Volcae, the, 36 ff.
Volcae Arecomici, 46 f., 49, 58, 60, 75 f.
Volcae Tectosages, 45 f., 49, 58 f., 61, 75, 78
Volusian, coins found at Alcester, 125; coins in the Mattishall hoard, 139
Vouni treasure, 4

Weiller, R., A hoard of radiate imitations from the Tetelbierg (G.-D. of Luxembourg), 163 ff.; drawing of the pot, 163
Weller, H. L., Eighteen Byzantine scyphate coins of the late 1200s, 235 ff.
Welwyn treasure trove of Roman Imperial denarii, 143 ff.
William of Tyre, 247
Wolsey groat, low weight, 222; found in Ireland, 222, 226

Yaśodāman II, 296
Yonge, D. D., reviews Pierre Bastien, *Le Monnayage de Bronze de Postume*, 341 ff.
York mint, dies of Edward I and II, 207, 211, 214; pence of Richard II, 273, 279

Zülpich mint, 280

PRICE: LARNACA HOARD (BERLIN)

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PRICE: SALONIKA FIND

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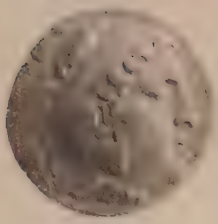
PRICE: MAEANDER VALLEY HOARD



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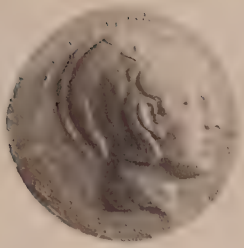

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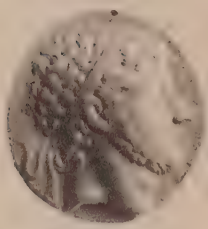

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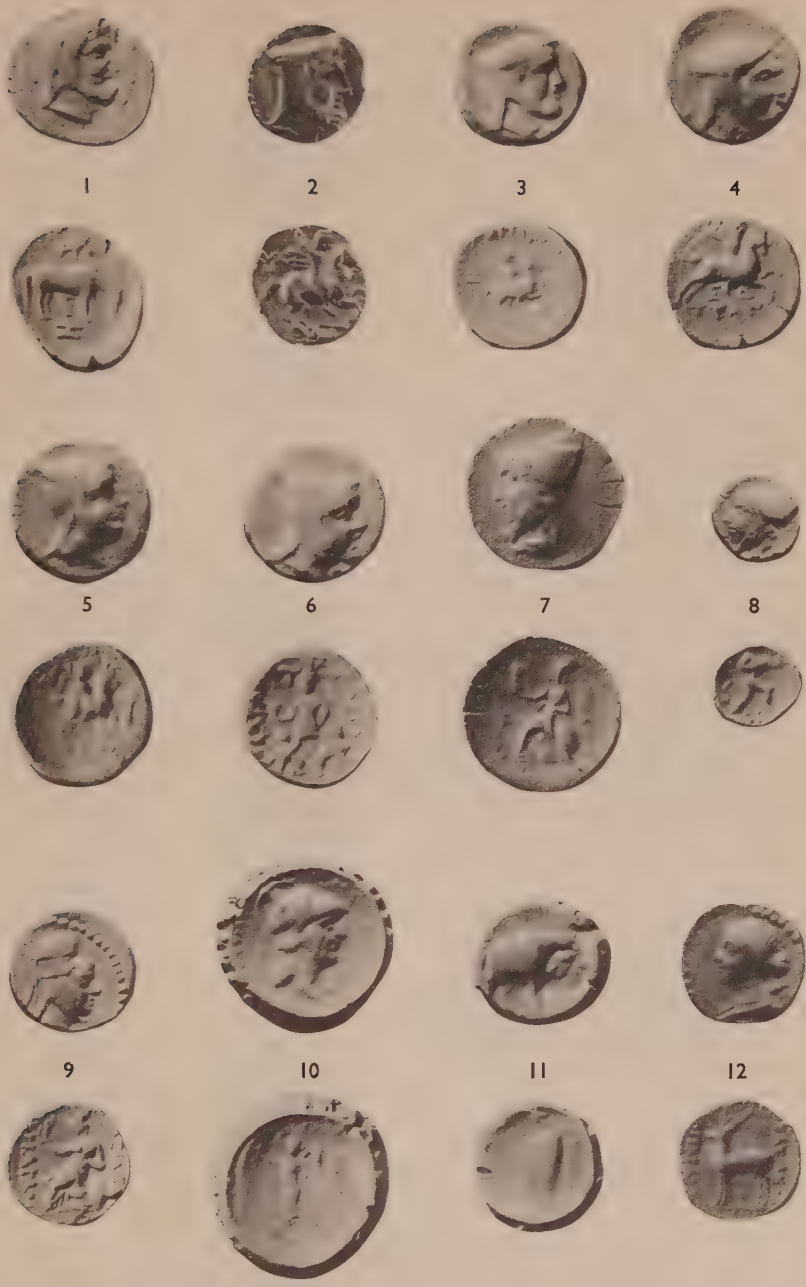
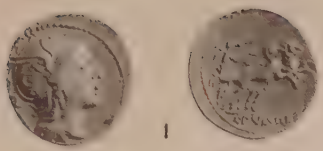


MØRKHOLM: CAPPADOCIAN COINS



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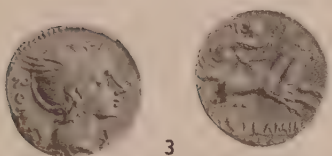

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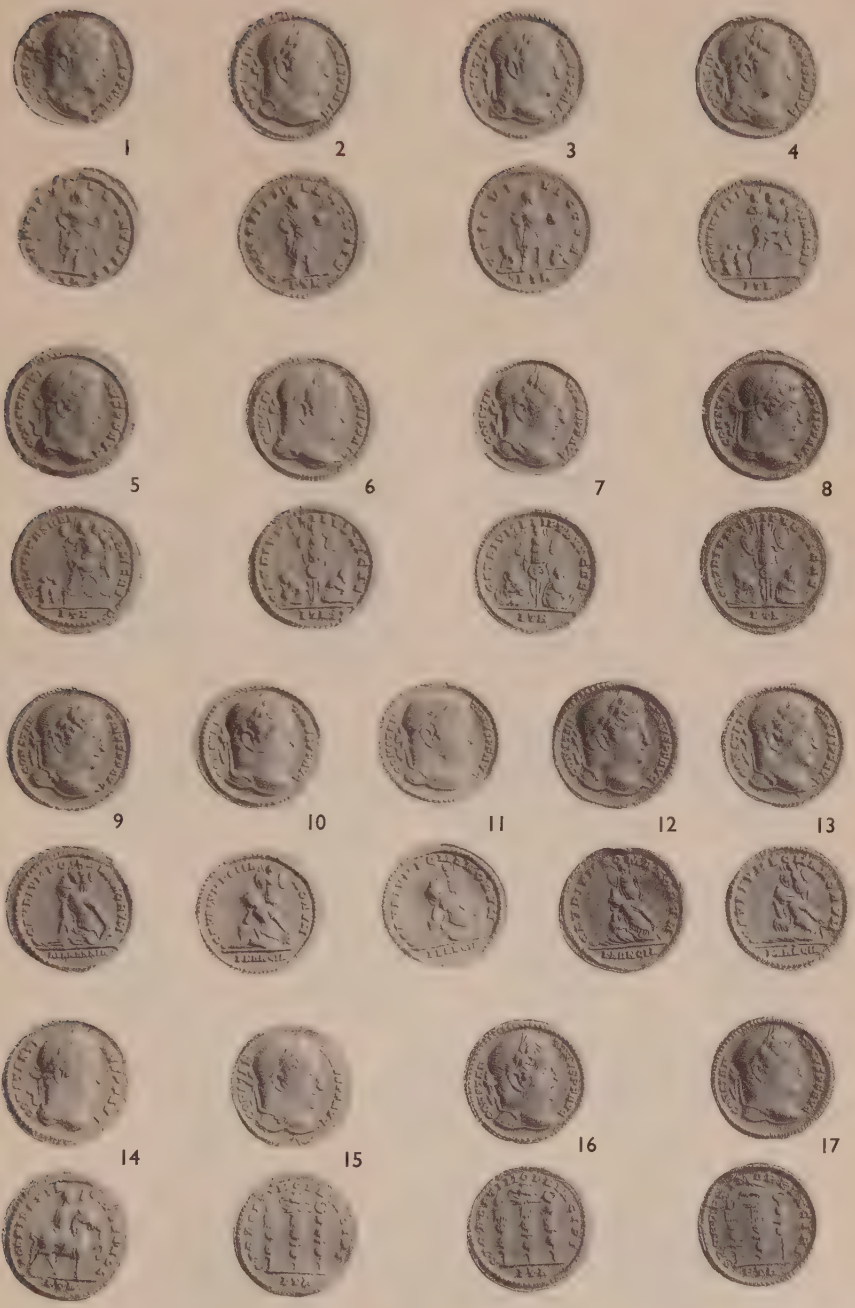
WEILLER : TETELBIERG HOARD (2)



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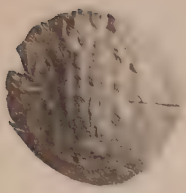

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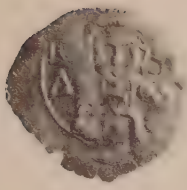

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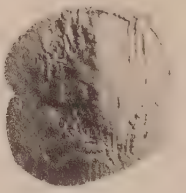

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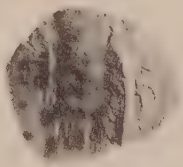

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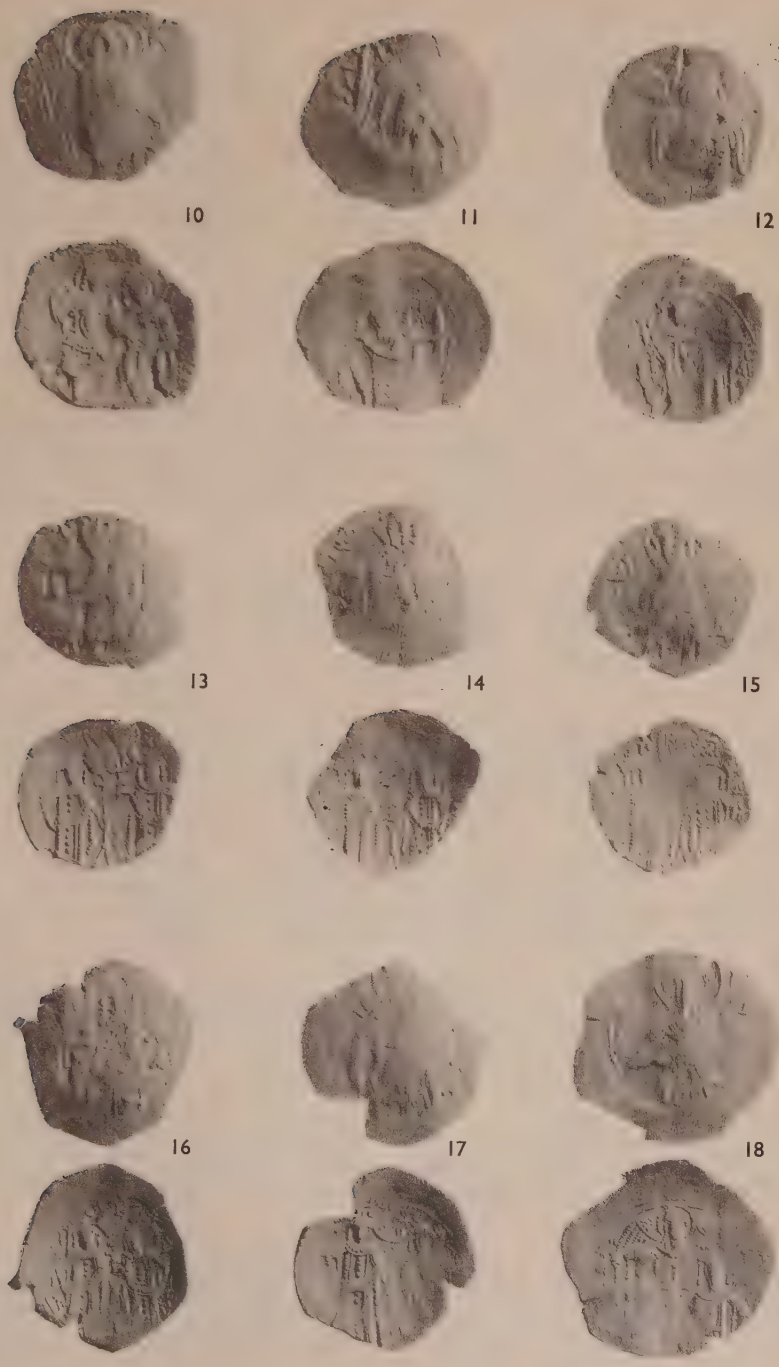

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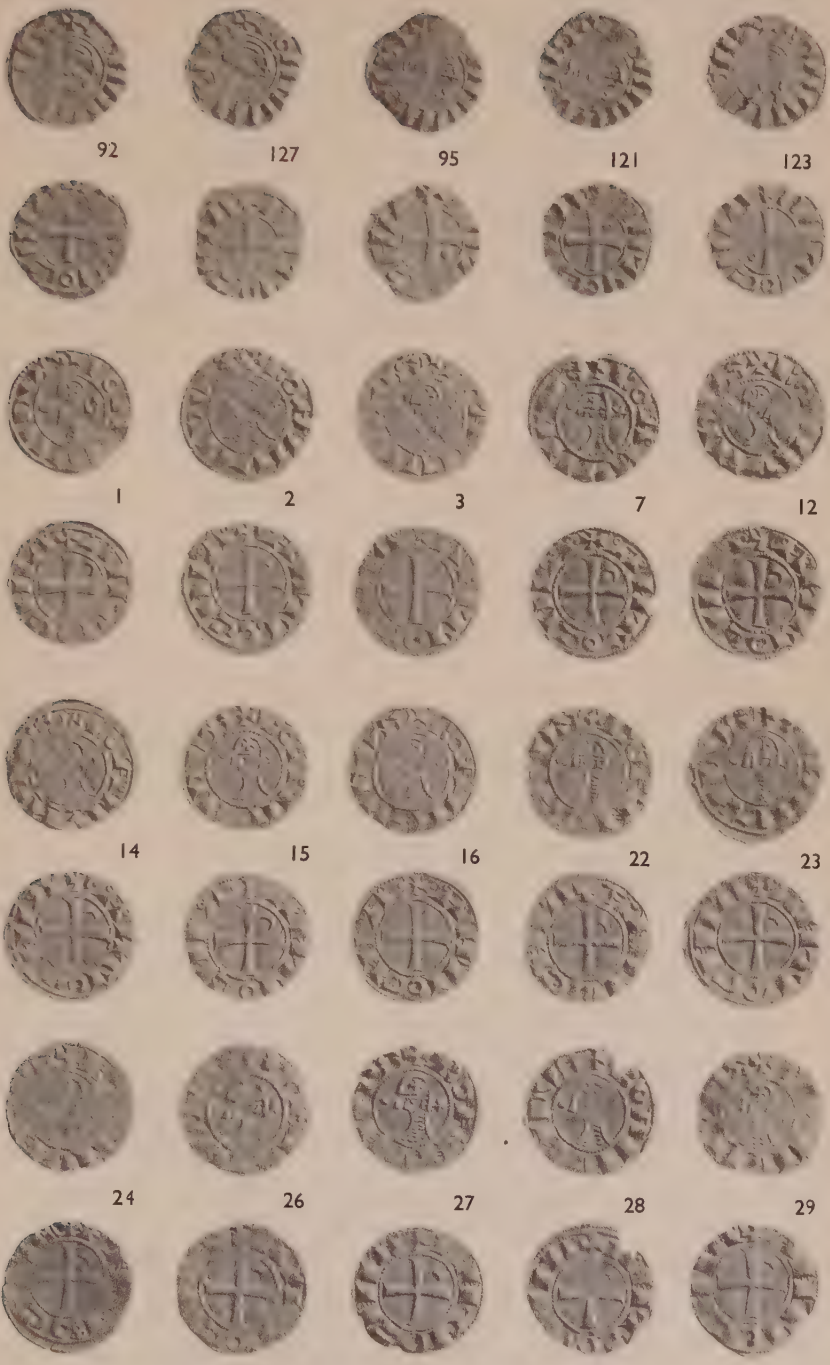
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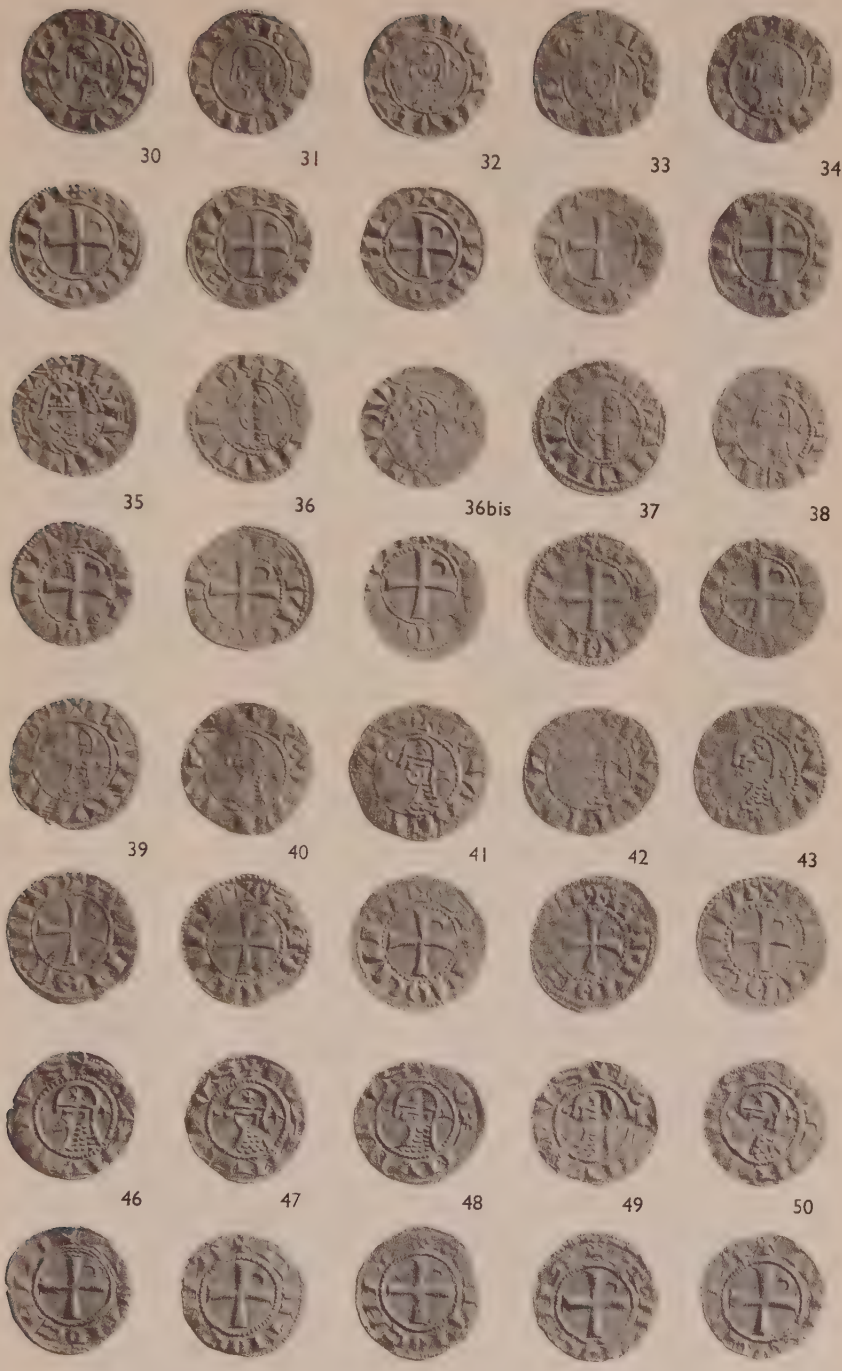
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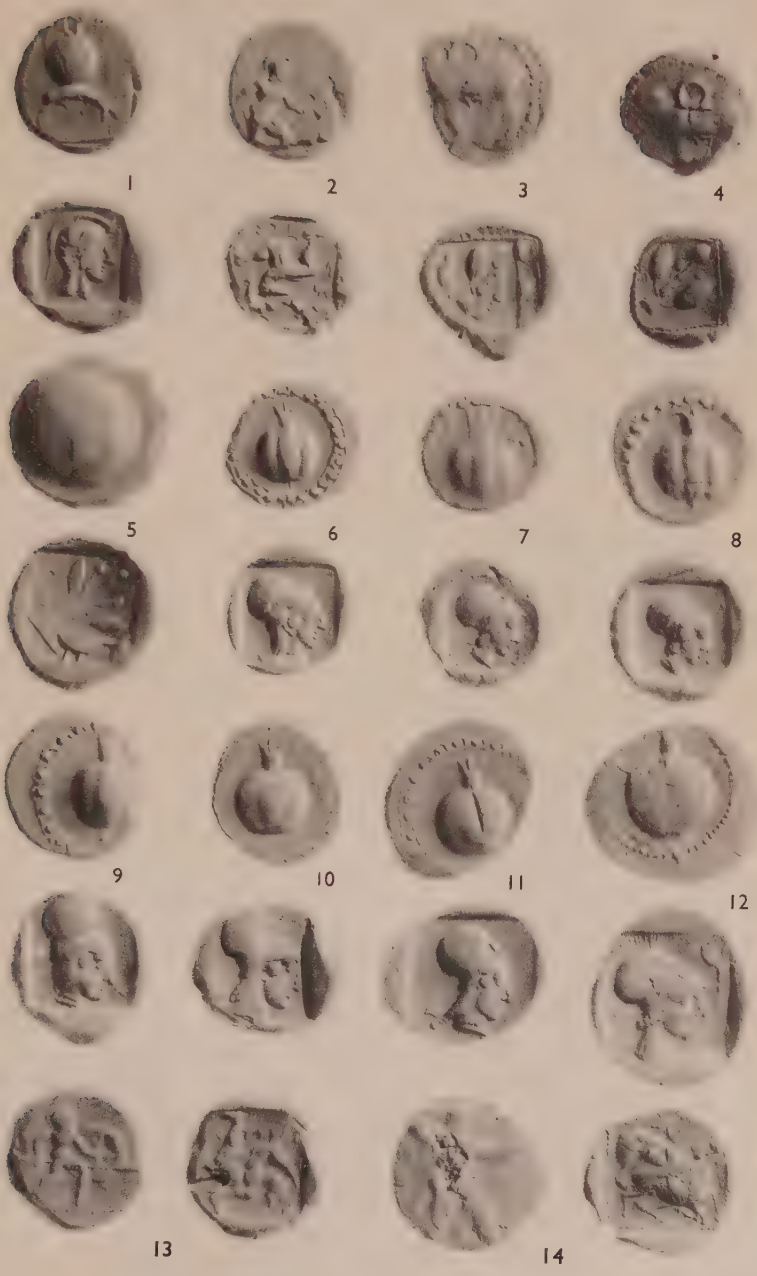
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THE PRESIDENT'S ADDRESS

SESSION 1968–1969

Delivered 17 June 1969

President, Mr. D. F. ALLEN, C.B., M.A., F.B.A., F.S.A.

Review of the Year

The Royal Numismatic Society has continued to enjoy a steady growth in the last year. At the end of 1968 there were 705 Fellows, of whom 687 were Ordinary and 18 Honorary. This represents a net increase in the year of 25 Ordinary Fellows, to whom we may add the election of Dr. Karel Castelin, of Prague, as an Honorary Fellow. This is a high membership and reflects the esteem in which the Society is held at home and abroad. About half the new members nowadays are, in fact, from abroad.

To present the picture fairly, it must be added that a number of universities, libraries, institutes or societies (five in 1968), who used to buy the *Numismatic Chronicle* through booksellers, have now decided to join the Society. This is mutually beneficial, but it does mean that what the Society gains through membership is partly lost to sales revenue. But I am happy to say, none the less, that sales of the *Numismatic Chronicle* continue to rise and we have decided to print more copies.

Of the Fellows who died in 1968, I mentioned in my last Review Mr. C. W. Peck and Professor T. O. Mabbott. Perhaps best known to the Society, of the others who died in the course of the year, was Mr. J. R. Pinches, head of the well-known firm of medallists of that name. Mr. Pinches had been a Fellow since 1927. Only a little less senior as a Fellow was Sir Frank Adcock the Roman historian, who joined the Society in 1931. When Harold Mattingly was in his prime, Adcock, then editor of the *Cambridge Ancient History*, was one of his strong supporters, despite occasional learned controversy. We are sorry to lose one of our most widely known and distinguished Fellows, even though it is many years since he personally attended any of our meetings. We have also lost Mr. Leonard Forrer, son of a famous father, who in various capacities was well known in the world of dealers. After some ups and downs, he was for a number of years before his death associated with Schulmans of Amsterdam,

where he lived. It is one of the penalties of growth, in a Society such as ours, that many of our Fellows, especially from abroad, are not well known in London, and I cannot do more than record our regret at the loss of Mr. Kirk Adams and Mr. Morris Klaif of the U.S.A., and Mr. J. Vila Sivill of Spain.

The event of the year which I am sure Fellows would wish me to put first in this review is the publication of two volumes of the *Numismatic Chronicle* in 1968, those for 1967 and 1968. I am deeming 1968 to cover for this purpose the early days of January 1969, for it is fitting to record this double issue in the year when the work was actually done. This means that as a result of the superhuman efforts of your editors, whose efficiency is wholly commendable, the Society has caught up with the backlog in the publication of the *Numismatic Chronicle*. Fortunately financial provision had been made, year by year, by your equally commendable Treasurer, for unprinted numbers, and we have survived the double issue with a minimal call on our resources. Material comes forward in ample supply and I have no doubt that the annual *Numismatic Chronicle*, issued towards the end of the titular year, is to be regularly expected; 1969 should be in your hands in December. I am not certain that Fellows would prefer, or there would be any gain from, a reversion to the pre-war practice of two, as it were, half *Numismatic Chronicles* a year. I should be interested to know if this is thought by Fellows to be a desirable objective; the consequence would be that the present practice of binding numbers, which I find very useful, would have, as before the war, to be dropped.

It is the policy of your Council to develop the series of Royal Numismatic Society Special Publications. In February of the year, Mr. Michael Crawford's *Roman Republican Coin Hoards* was published in this series. There were about 300 pre-publication subscription sales; the practice of pre-publication offers is advantageous to the Society and will be continued. I hope this important book sells well. Its successor will be Dr. C. H. V. Sutherland's important study on *The Cistophori of Augustus*, on which he has already delivered a paper to us. While not committing itself to any rigid or specific programme, the Society aims to produce a monograph not less frequently than once every two years. The material comes forward and I trust will continue to do so. I believe that if the arrangements for advertising and marketing are satisfactory, once this rhythm is established, the series should pay for itself without

substantial subsidy. Further consideration will need to be given to the terms on which Fellows may buy individual numbers or subscribe to the series. They may fairly claim some preference, but not at the cost of the viability of the scheme.

Other publications in the year deserve mention; they are not subsidized by the Society, but in many cases the authors or editors are respected Fellows. The *Sylloge Nummorum Graecorum* has been exceptionally productive. Volumes II–IV of the Addenda have completed the publication of the von Aulock collection. The first volume of the Munich collection, covering Spain and Gaul, has appeared; similarly the first volume of the Klagenfurt collection, covering Italy. The steady expansion of the *Sylloge Nummorum Graecorum* outside this country, where it originated on the initiative of Dr. E. S. G. Robinson, and with the support of the British Academy, has meant that it is desirable to have some formal procedure for ensuring the maintenance of common standards. This has now been established by the creation, on the initiative of Professor Paul Naster of Louvain University, of a Committee of the International Numismatic Commission for this purpose. It is worth comment that up till now the *Sylloge Nummorum Graecorum* has, so far as this country is concerned, paid its way for many years without subsidy, and it is to be hoped that this can survive against rapidly inflating printing costs and standards properly maintained.

The *Sylloge of Coins of the British Isles* also makes progress and has now passed its tenth volume. Current policy is to produce two volumes a year. Thanks to generous support in the early days, the *Sylloge* can normally finance each new volume out of the proceeds of the last. Its volumes during the past year have been on the *Anglo–Irish Coins in the Ulster Museum from John to Edward III*, by Mr. Seaby and Mr. Dolley in collaboration and the joint volume, with a team of editors, led by Mr. Blunt and Mr. Dolley, describing the *Anglo-Norman Coins in the Royal Collection at Stockholm* and, *pietatis causa*, the collection of *Anglo-Saxon and Norman Coins* formed by Reading University under the guidance of the late Sir Frank Stenton, first Chairman of the British Sylloge Committee.

Other works of importance in the year—chosen selectively—are M. Louis Robert's *Monnaies Grecques*, Professor Laura Breglia's *Roman Imperial Coins*, and Mr. Philip Grierson's second volume of the catalogue of the *Dumbarton Oaks Collection of Byzantine Coins*. Nearer home we have Bernt A. Petersson's *Anglo-Saxon Currency*,

a valuable study of our currency, monetary, and economic problems, particularly welcome from an overseas scholar, and Linecar and Stone's *English Proof and Pattern Crown-Size Pieces*. In the Oriental field, I record the last portion of Zambaur's *Die Münzpräging des Islams*, a monumental work, already reviewed in the *Numismatic Chronicle*, which was finished in 1939 and only now published. Finally, in the field of medals, to which we in this Society have in recent years given minimal attention, I draw attention to Mr. Graham Pollard's fine catalogue of the *Renaissance Medals in the Kress Collection*. I omit a number of minor and more ephemeral works, which are at least evidence of the remarkable growth in recent years of interest in the collection of coins and medals. It can be claimed, on the strength of the works I have mentioned, that numismatics remains a live subject of study, in which much is being achieved, but much more yet remains to be accomplished.

As I have said on previous occasions, I believe that a report such as this, in which I account to the Society for the conduct of its affairs in the previous year, should also look ahead to the future and outline the policy which, so far as may rest with me, it would be my aim to follow in the future. Under this heading I will mention three subjects, none of which is new to the Society: Antiquities legislation, the future of Treasure Trove, and the future of the Royal Mint Museum.

It is by now fairly widely known that the Council for British Archaeology has for more than a year been engaged on preparing possible legislation regarding the protection of our archaeological heritage. The work has been undertaken as a labour of love by Mr. Charles Sparrow, Q.C., and the last draft I have seen is the eighth. The intention of the Bill is to cover two separate and only indirectly related matters, the reporting and preservation of archaeological finds on the one hand, and the export of antiquities on the other. Very simply, the Bill would require any finder of an archaeological object to report the finding to an archaeological agent and not to dispose of the object, except to an approved museum, before a given period has elapsed. The Bill would also introduce a licensing system for the export of archaeological objects. Offences are created for failure to comply with the requirements. Naturally much turns on the definition of archaeological object, archaeological agent, finder, and so forth, as well as on the exceptions and qualifications. The aim would be to persuade a private Member of Parliament to take up and promote the Bill in the next Session, 1969–70.

The Bill was seen earlier in the year by your Council and also by the Council of the British Numismatic Society and, as a result of representations, a number of changes have been made. The Bill does not now in any way affect the law of Treasure Trove, but the obligation to report a find would be a double one, arising both under the old law and the new. The export provisions of the Bill are now confined broadly to antiquities found in Britain, and its application to coins, medals, tokens, etc., has been excluded. Buying and selling of coins would continue, subject to existing export and financial controls, but no others. It may be said, therefore, that the Bill in its present state has a minimal bearing on the interests of the Society and, in so far as it were to bring to light coin finds not covered by the law of Treasure Trove, it could have a marginally beneficial effect.

Nevertheless, I still view with some misgivings a Bill so widely drawn that a finder of an eighteenth-century halfpenny (certainly an archaeological object within the meaning of the definition) commits a technical crime if he does not report it, with a description, to an archaeological agent within a week of finding, and is required not to part with possession for another six months. It may well be that the laws of the country do not adequately protect our archaeological heritage (and we certainly are in a minority in not having antiquities legislation), but I remain obstinately convinced that the protection of antiquities in general and coin finds in particular lies more in the provision of adequate funds for their recovery and recording than in the creation of a whole new range of petty offences. If the Bill were to become law, however, which I doubt, we could at least say that our numismatic interests have been protected.

It is probable that the coming year will see renewed discussion, irrespective of the Bill I have described, of the law of Treasure Trove. An inquiry into the functions of coroners has long been in progress and must be nearing the point of issue. If, as is widely believed, the inquiry were to recommend the abolition of the coroner's function in regard to Treasure Trove, that does not in itself modify the law but only the machinery for the first judicial stage in its administration. Nevertheless, a change of this nature would be bound to call attention to the wider question. My own view, which I express as a personal one and not as your Council's, is that this administration is already ripe for overhaul in other respects as well.

In anticipation of changes I have had an initial discussion with the Director of the British Museum, on which so much of the invidious

responsibility for the administration of the law of Treasure Trove inevitably falls. I can at this stage say little more than that I have found him a very attentive listener, but it can do no harm if I outline to you the kind of views I expressed.

I believe that, so far as coins are concerned (numerically but not always by value the largest part of Treasure Trove), the present system, whereby the investigation, conservation, valuation, disposal, and eventual publication may all fall on the overworked Department of Coins and Medals, is calculated to give the maximum grounds for argument. However fairly, disinterestedly, and studiously the Department behaves (and we all have full confidence in them) the system makes them, once the coroner has declared a find Treasure Trove, sole arbiters, without appeal, in what often is, or at least seems to be, their own cause (though, perhaps more often than is sometimes thought, they are acting with and in the cause of other institutions). Moreover, there is no arrangement for public accountability, in the sense of the annual report to Parliament, which normally accompanies functions akin to Treasure Trove administration.

I take the view, therefore, in which I hope some if not all Fellows will follow me, that the functions of valuing, rewarding finder, arranging distribution, and eventually supervising publication should not rest solely with the Department, but should be entrusted to some new and indifferent machinery designed to ensure public confidence, public accountability, and early publication. Only in this way will the underlying objects of the presently established practice in regard to Treasure Trove (I am assuming no change in the law) be continuously and successfully achieved. If such a system can only be operated by the provision of some kind of revolving fund to support rewards for finders then that is a problem that must be faced. Lest I be misunderstood, my words in no way criticize individuals, past or present; at an earlier stage in my career I was as much involved in the system I now criticize as are my successors. I have no doubt hard words have, before now, been said about me and my part in it, and not without some reason. Moreover, I believe that, if there were any chance of changing the law we should now work towards a system which extends the coverage of the Treasure Trove principle to finds of non-precious metals and finds in burials. Only in this way can we be confident that all the hoards, on which so much of our work depends, will be recorded or preserved intact, as the case may be, and the supply of valuable material for study in public or private collections

be maintained. If some of this could be achieved, then, in our numismatic field, I should regard it as a much greater step forward than anything that could come from the Antiquities legislation now in preparation.

The third subject to which I would refer is the future of the Royal Mint Museum. It is well known that the Royal Mint is in process of transfer from Tower Hill to Cardiff. The Royal Mint is today a major production industry, especially with decimal coinage on its way to introduction; it must be run on the lines of any modern factory and, as taxpayers, we must all wish it success in its new home. But the Royal Mint, as we are very conscious, is also the repository of a long historical tradition, and there is a real danger that the move to Cardiff, with the possible abandonment of the magnificent Tower Hill site, will have disastrous consequences from the antiquarian point of view.

Accordingly, a group of four from the Society, Dr. Sutherland, Mr. Grierson, Dr. Kent, and myself, visited the Deputy Master of the Royal Mint during May. The burden of our representations was that it would be undesirable for the Mint collections to disappear to Cardiff, and that there was a strong case for converting the present Mint premises, built in the time of Newton's Deputy Mastership, into a permanent exhibition centre, on the lines of La Monnaie in Paris (within sight of which I am writing these words). In particular it was desirable to ensure the preservation of representative minting machinery and equipment from the past, which on commercial grounds would no doubt simply be scrapped. There was also reason to suppose that the policy of destroying official documents no longer required for official purposes was being carried to a length which obliterated important analytical, economic, and art history records.

Mr. James, the Deputy Master, declared himself interested in these representations on an aspect of Royal Mint affairs which, I think it was clear, had received little attention of late. I know that he has since had discussions with the British Museum and we shall no doubt, during the coming year, learn what decisions are taken, but I thought the Society would like to know that we have been active in this matter. The Royal Mint collections have for some time been out of access and this must remain a matter of regret. It does seem to me that, in the long run, there could well be a case for closer collaboration between the British Museum and the Mint in regard to the curatorship of a collection, which is on a scale and of a quality to deserve national treatment.

One other matter to which I believe we should give attention in the coming year is the methods of technical and statistical analysis of coins and their materials. Much uncoordinated work is in progress in different places which needs to be brought together. I hope that, in the course of the year, I may have some suggestions to make.

Finally, I would like to mention a matter of a more personal nature. You have done me the honour, for three years, to elect me your President, and I have, with some hesitation, now allowed my name to be put before you for election for a fourth year. A five-year tour is normal in this Society, as in some others. I can claim a fair experience of learned societies of different kinds, and my own judgement is that a five-year tour is on the long side, not so much from the individual's point of view—an aspect not to be pressed—but from the point of view of the Society. Any Society which contains a sufficiency of what I may call potential Presidents, should make use of them, and relatively young. Ideas should change. I would, therefore, hope to reduce, by my own example, the normal tour of office from five years to four and consequently not to stand for election next year. I believe profoundly that such a change is for the long-term benefit of the Society and I hope it will be accepted in future as the norm, not the exception.

Address

The President addressed the Society on William Stukeley, the eighteenth-century antiquarian and numismatist. This paper will be published in *Numismatic Chronicle* 1970.

PROCEEDINGS OF THE ROYAL NUMISMATIC SOCIETY

SESSION 1968–1969

18 October 1968

ORDINARY MEETING

Mr. D. F. Allen, President, in the Chair.

The minutes of the May meeting were read and signed.

The names of the following candidates for election were read for the first time: Istituto di Archeologia, Bari, Mr. R. Barker, Mr. B. M. Fagleman, Mr. P. Finn, M. J.-B. Giard, Mr. C. Hale, Mr. D. J. MacDonald, Mr. A. G. Pitsillides, Mr. W. E. Rajakaruna, Mr. P. F. Rynearson, Mr. K. Steinman, Mrs. I. K. Smith, Mr. R. W. Shillingworth, Mr. J. J. Slocum, Mr. P. Spalding, Mr. T. H. G. Ward, and Mr. G. D. Wynn.

Mr. R. W. Morris was elected into the Society.

Dr. C. M. Kraay read a paper on 'The Demareteion and Sicilian chronology'. According to Diodorus the Demareteion was struck soon after the battle of Himera in 480, and weighed 10 Attic drachmas; it has therefore long been identified with the first Syracusan decadrachm which, apparently securely dated to 480/479, has thus become a key point for the fifth-century numismatic chronology of Sicily. This identification, however, yields a chronology for Syracuse and associated mints which involves serious historical improbabilities. By reducing the date of the decadrachm to about 465/460, a more plausible chronological distribution of Syracusan coinage emerges, in which the 'new' type with dolphins is identified as Gelon's coinage from his new capital at Syracuse, starting on a small scale in 485 and increasing to a flood only after 480. About this time, or shortly before, derivative coinages were initiated at Leontini and Gela. The record of hoards and overstrikes shows that a similar reduction of fifteen to twenty years in Syracusan dates is required for the rest of the fifth century down to about 425. The dates of other issues, stylistically related to those of Syracuse, will have to be reduced likewise.

19 November 1968

ORDINARY MEETING

Mr. D. F. Allen, President, in the Chair.

The minutes of the October meeting were read and signed.

The following nominations for election were made: Istituto di Archeologia, Bari, Mr. R. Barker, Mr. B. M. Fagleman, Mr. P. Finn, M. J.-B. Giard, Mr. C. Hale, Mr. D. J. MacDonald, Mr. A. G. Pitsillides, Mr. W. E. Rajakaruna, Mr. P. F. Rynearson, Mr. K. Steinman, Mrs. I. K. Smith, Mr. R. W. Shillingworth, Mr. J. J. Slocum, Mr. P. Spalding, Mr. T. H. G. Ward, and Mr. G. D. Wynn.

Mr. R. W. Morris was elected into the Society.

Mr. Michael Hendy read a paper on 'The Byzantine hyperpyron: its decline and fall'. The evidence for the decreasing gold-content of the hyperpyron rests upon three major types of source: direct contemporary or near-contemporary documentary evidence; exchange-rates against other currencies; modern analyses. The evidence of the Byzantine historian George Pachymeres and the Florentine merchant Francesco Balducci Pegolotti combined to give an almost complete and very detailed survey of the Byzantine gold coinage over the crucial period c. 1222–c. 1328. This, when backed by modern analyses, gave far more reliable results than a comparison of exchange-rates ever could, since these latter were liable to serious fluctuations often unconnected with relative metal-content. The customary assumption, that the decline and fall of the gold hyperpyron reflected the desperate political and economic situation of the empire, was doubtless justified to some considerable degree but failed to take into account the prevalence of such a phenomenon over almost the whole of the eastern Mediterranean area, including states less obviously decadent than the empire. There is in fact a considerable amount of evidence to suggest that, for whatever reasons, a large-scale realignment in the possession and employment of precious metals was taking place: gold travelling westwards, silver eastwards. As far as the Byzantine Empire was concerned this led to the emergence of a silver-based currency, in place of the traditional gold one, probably at some point between the abdication of John VI in 1354 and the usurpation of Andronicus IV in 1376. It would thus have been the work of the Emperor John V or his advisers.

17 December 1968

ORDINARY MEETING

Mr. D. F. Allen, President, in the Chair.

The minutes of the November meeting were read and signed.

The names of the following were read for the first time: Mr. J. Appleton, Mr. A. H. E. Baldwin, Mr. J. F. Cladd, Jun., Mr. F. V. Fowler, Dr. M. E. Fabricotti, Col. D. F. Graham, Mr. M. Hillel, Institut für Antike Numismatik, Vienna.

The President presented the Parkes Weber Prize to Mr. Iain C. Thomson for his essay on 'Seventeenth Century Tokens'.

Dr. Roderick T. Williams read a paper on the 'Silver coinage of the Phokian Confederacy'. He produced evidence to show that the earliest coins of the Phokians coincided with the probable date of the establishment of their Confederacy (c. 510). Among later issues he distinguished a section which he maintained was struck while the Phokians were in control at Delphi during the middle of the fifth century and was possibly struck at Delphi itself. He thought it unlikely that gold was issued in the Third Sacred War, as Diodorus says, or that only Onymarchos and Phayllos struck coins, as he implies. The die-sequences of the silver coinage were allotted to the individual generals on the evidence of the bronze issued by Onymarchos and Phalaikos. In the Third Sacred War issues there seemed to be evidence on the problem of the survival rate of Greek coins.

21 January 1969

ORDINARY MEETING

Mr. D. F. Allen, President, in the Chair.

The minutes of the December meeting were read and signed.

The names of the following were read for the first time: Mr. M. R. Broome, Mr. P. S. Cribb, Mr. M. R. Curry, Mr. D. R. Esner, Dr. Shelagh Jameson, Mr. E. H. Redfern, Mr. J. M. Reid, Mr. G. Smookler, and Mr. R. J. Trowbridge.

The following were elected into the Society: Mr. J. Appleton, Mr. A. H. E. Baldwin, Mr. J. F. Cladd, Jun., Mr. F. V. Fowler, Dr. M. E. Fabricotti, Col. D. F. Graham, Mr. M. Hillel, Institut für Antike Numismatik, Vienna.

Mr. Philip Grierson read a paper entitled 'Money, coinage and weight'. He pointed out that coinage, when invented in Asia Minor and subsequently introduced into different societies elsewhere, had in each case to be fitted into a pre-existing local system of money and currency. While coinage offered few advantages and some serious disadvantages to communities which had previously used metal by weight, it would in many respects provide a much more convenient medium of exchange than utensil currencies (cauldrons, tripods, axes, etc.). He suggested that this might help to explain the contrast between the rapidity with which coinage spread in the Greek world, where utensil currencies were widely used, and the slowness of its adoption by the Phoenicians and Carthaginians and by the great empires of the Near East, whose monetary systems were based on metal by weight.

18 February 1969

ORDINARY MEETING

Mr. D. F. Allen, President, in the Chair.

The Minutes of the January meeting were read and signed.

The names of the following were read for the first time: Mr. E. Galvin, Kungelige Myntkabinettet, Stockholm, Mr. Y. Meshorer, Professor P. M. F. Naster, and Mr. J. D. Weight.

The following were elected into the Society: Mr. M. R. Broome, Mr. P. S. Cribb, Mr. M. R. Curry, Mr. D. R. Esner, Dr. Shelagh Jameson, Mr. E. H. Redfern, Mr. J. M. Reid, Mr. G. Smookler, and Mr. R. J. Trowbridge.

Mr. G. K. Jenkins read a paper entitled 'Coins and languages of the ancient Iberian peninsula', dealing with a selection of Punic, Neo-punic, Greek, Iberian, and Celtiberian coins together with inscriptions preserved in other forms, illustrating the various zones of language and culture which existed in the peninsula during Hellenistic and Roman republican times.

18 March 1969

ORDINARY MEETING

Mr. D. F. Allen, President, in the Chair.

The minutes of the February meeting were read and signed.

The names of the following were read for the first time: Professor Dr. Ernesto Bernareggi, Mr. Paul J. Calhoun, Mr. Curtis L. Clay, Mr. H. W. A. Linecar, Mr. J. L. C. McKay-Clements, Mr. Harold J. Nussbaum, Mr. B. D. Stalbow, Mr. C. K. Welch, and the Istituto di Archeologia e Storia Antica, Lecce.

The following were elected into the Society: Mr. E. Galvin, Mr. Y. Meshorer, Professor P. M. F. Naster, Mr. J. D. Weight, and the Kungelige Myntkabinettet, Stockholm.

Mr. M. R. Broome was admitted into the Society.

Mr. Michael Dolley read a paper entitled 'The coinage of Lambert Simnel'. He began by discussing earlier attributions of the rare Anglo–Irish three-crown groats with the name or initial of an Edward and/or the anachronistic title REX HYBERNIAE. The suggestion of Richard Butler, revived by Raymond Carlyon Britton, that the unusual titulature must denote Simnel, founders on the historical improbability that the pretender

would have flouted quite gratuitously Papal suzerainty. Moreover, the best of the early evidence is that Simnel in fact was crowned in Dublin 'Edward (VI), King of England, Lord of Ireland'. The contemporary document, too, which seems to style him 'King of Ireland' may emanate from a rebel chancery, but is dated weeks after his capture at Stoke and is in error in styling Kildare Lieutenant—he was in fact Deputy. No real significance, then, should be attached to the Irish royal style which seems in the case of the document to stem from ignorance, and in the case of the coins from mere blundering. On the other hand, Aquilla Smith's attribution of the coins in question to Edward IV founders on a number of grounds. For example, the types do not in fact correspond to those specified in the document adduced, and it is possible to show that the coins under discussion belong *after* those with the name of Richard which head the series and which must be given to Richard III. The 'Edward' coins can be shown to emanate from two mints, Dublin and Waterford, and it is possible to show that at the former they followed an anonymous issue and precede one in Henry's name. At Waterford, on the other hand, they can be shown to follow an issue in the name of Henry VII and to be followed only by the anonymous series with the Geraldine arms which Aquilla Smith sought to associate with Trim. In both cases the sequence is clear from style and die-linking, so that the numismatist is led to suppose that the 'Edward' coins were struck a year or so after Henry VII had come to the English throne. It cannot well be a coincidence that in May 1487 Simnel was crowned Edward VI. The principal objection to this arrangement of the coins is that there is no direct evidence that Waterford wavered in its perhaps too much protested loyalty to the Tudors, but enough weight has not been given to the marriage alliance which Kildare had contracted shortly before this with the junior line of the Butlers. The numismatic evidence for Waterford, passing for a while under Geraldine control, is too strong to be disregarded. The paper concluded with a brief review of the three-crown coinage at Dublin between the expeditions of Edgecombe and Poynings, especial note being taken of Mr. W. A. Seaby's observation that some of the half-groats read DOMINE KERIE, and the suggestion being made that the second element of the legend represents the Greek κύριε, the whole being intended to read as double vocative 'O Lord, O Lord'.

15 April 1969

ORDINARY MEETING

Mr. D. F. Allen, President, in the Chair.

The Minutes of the March meeting were read and signed.

The names of the following were read for the first time: Mr. B. G. Allison, Mrs. M. E. Bussell, Mr. C. Gaytan, Dr. E. O. Halliwell, Mr. C. Hubbard, Mrs. Widad Ali al-Kazzaz, Mr. A A. Miles, Major C. H. Schroeder, Mr. D. R. Sear, Mr. T. R. Volk, and Mr. R. D. Williams.

The following were elected into the Society: Professor Dr. E. Bernareggi, Mr. Paul J. Calhoun, Mr. Curtis L. Clay, Mr. H. W. A. Linecar, Mr. J. L. C. McKay-Clements, Mr. Harold J. Nussbaum, Mr. B. D. Stalbow, Mr. C. K. Welch, and the Istituto di Archeologia e Storia Antica, Lecce.

Dr. Shelagh Jameson in a paper on 'Some problems in the coinage of Syracuse' said that hoard and stylistic evidence suggests that the Kimonian decadrachms were struck for a short period between 405 and 396. The decadrachms of Euainetos were later, and may have been struck after 397 since they were not imitated at Motya. The issue continued down to the early 370s, possibly to 378 when Dionysius was obliged to pay a huge indemnity to Carthage; and it was accompanied from c. 390 by a gold coinage which continued for a short time after the decadrachms had ceased. It is unlikely that the coins were of agonistic significance. The decadrachms of Kimon may have been the prizes offered to armourers in 399; but it is more likely that the suit of armour and the word A•M represent the Greek *panoplia*, awarded for military merit, and that the decadrachms were minted to pay Dionysius' mercenaries.

20 May 1969

ORDINARY MEETING

Mr. D. F. Allen, President, in the Chair.

The Minutes of the April meeting were read and signed.

The names of the following were read for the first time: Mr. H. G. Baraird, Mr. J. Capozzolo, Mr. G. H. Isherwood, Mr. R. P. Findlay, Mr. I. P. Layne, Mr. P. L. Sullivan, and Mr. B. K. Walters.

The following were elected into the Society: Mr. B. G. Allison, Mrs. M. E. Bussell, Mr. C. Gaytan, Dr. E. O. Halliwell, Mr. C. Hubbard, Mrs. Widad Ali al-Kazzaz, Mr. A. A. Miles, Major C. H. Schroeder, Mr. D. R. Sear, Mr. T. R. Volk, and Mr. R. D. Williams.

Mr. Brian Fagleman was admitted into the Society.

The President announced that Council had unanimously approved the award of the Society's medal to Mr. Christopher E. Blunt.

M. Jacques Yvon read a paper on 'Western silver coinage in Syria in the fourteenth and fifteenth centuries'. The composition of several finds of coins from various parts of medieval Syria reveals a monetary circulation

of western silver during the fourteenth century and the beginning of the fifteenth. Apart from a few gillati of Robert d'Anjou and imitations of them, and a few groats of Cyprus, the finds are composed mostly of French 'gros tournois' of Louis IX, Philip III, IV, and V, and of Venetian grossi or matapans.

Of these coins, the most numerous class in the finds, the matapans of Andrea Contarini (1369–82), Antonio Venerio (1382–1400), and of Michele Steno (1400–13), forms the major part. The hoard of Tiberias and the site-finds of the Danish excavations at Hama confirm the circulation of these Venetian grossi in Syria together with mamluk dirhems. The preponderance of the matapans of these three Doges is not surprising, for at this time relations of Venice with Egypt and Syria were renewed and strengthened. An additional reason for the presence of these coins is the lack of the mamluk coinage in these years.

The absence of any Venetian grossi later than the reign of the Doge Michele Steno (1400–13) may be due to such events as the entrance of Timur into Syria in 1400 or the attempts by Marshal Boucicaut in 1403 to land on the Syrian coast at Tripoli, Beirut, and Sidon. The cessation of the demand for Venetian grossi in the Syrian markets may be connected with the issue of a new gold coin by the Sultan Faraj in 1407 and the raising of the ratio of gold to silver to 14 to 1. Moreover, the good alloy of the new dirhem struck by the Sultan al Mu'ayyad Shaitch in 1414 was maintained by his successors.

It is very likely that the coins of Michele Steno and the earlier silver coins which were in circulation in 1414 had been decried. That would explain why most of the coins from the various finds are pierced or mounted. They were no more than jewels. In the Tripoli find, in addition to the coins, there were one frontlet, two bracelets, and a little bowl in which the coins and objects had been buried. Maqrizi reports another example in a similar but earlier circumstance. The coins were considered as jewels and sold in the bazaars as hiradj, pendants used for woman's head ornaments.

17 June 1969

ANNUAL GENERAL MEETING

Mr. D. F. Allen, President, in the Chair.

The Minutes of the Annual General Meeting held on 18 June 1968, were read and signed.

Mr. Reece and Mr. Teasdill were appointed scrutineers of the Ballot.

The names of the following were read for the first time: Mr. G. Bardoni, Mr. R. Du Cane, Mr. S. S. Haddad, Mr. L. H. Fletcher, Professor J. Scarsborough, Professor F. J. Stopp, and Mrs. M. Sweeten.

The following were elected into the Society: Mr. H. G. Bavaird, Mr. J. Capozzolo, Mr. G. H. Isherwood, Mr. R. P. Findlay, Mr. I. P. Layne, Mr. P. L. Sullivan, and Mr. B. K. Walters.

Mr. G. Smookler and Mr. E. H. Redfern were admitted into the Society.

The following report of Council was laid before the Society:

Council regrets to report the death of eight Ordinary Fellows.

Kirk Adams
Sir Frank Adcock
L. S. Forrer
Morris Klaif
T. O. Mabbott
C. W. Peck
J. R. Pinches
José Vila Sivill

Eleven Fellows have resigned:

T. G. Bowen
P. S. Favro
W. D. Gaherty
E. Gans
G. Hickinbottom
J. H. Ingham
H. Kaus
Miss M. Lister
F. B. Payton
E. W. Rowthorn
J. B. Sureck

Ten Fellows have been removed under by-law 15.

Council, however, is pleased to record the election of fifty-five new Fellows:

Honorary Fellow

Karel Castelin

Ordinary Fellows

Aarhus, Statsbiblioteket
Bari, Istituto di Archeologia
R. Barker
Miss P. Bhatia
M. Bowers
J. J. Cabarrot
J. Casey
Cork Numismatic Society
I. d'Alton
D. A. Donegan
Miss J. M. Fagerlie
B. M. Fagleman
D. Fearon
P. Finn
Mrs. E. L. Gaver
J. B. Giard
G. Gorini
Göteborg, Universitetsbibliotek
D. Greenwood
H. Griffin
The C. Gulbenkian Foundation
J. A. Haigh
C. Hale
C. M. Houlton
G. D. Johnson
E. Junge
G. W. Kienast
P. Kremerskothen
T. Kuyas
P. Lane
M. Lessen
London, University College Library
D. J. MacDonald
D. E. Magnay
D. M. Miller

R. W. Morris
Oxford, The Librarian, Ashmolean Museum
Oxford, The Librarian, Christ Church
P. Peck
A. G. Pitsillides
W. E. Rajakaruna
N. G. Rhodes
P. F. Rynearson
R. S. Sancroft-Baker
R. W. Shillingworth
J. J. Slocum
Mrs. I. K. Smith
P. Spalding
W. F. Spengler
K. Steinman
P. Tyler
H. R. Vincent
T. H. G. Ward
M. Woloch
G. D. Wynn

The state of the Society as at 31 December 1968 compared with 31 December 1967 is:

	Ordinary		*Honorary*		*Total*	
December 1967	662		17		679	
Elected	54		1		55	
	—	716	—	18	—	734
Deceased	8		—		8	
Resigned	11		—		11	
Removed	10	29	—		10	29
		687		18		705

The Treasurer then made his report, in the course of which the accounts, printed below, were laid before the meeting. The reports were adopted.

The Meeting approved the proposal recommended by Council that a 'Fellow may compound for all future annual subscriptions by paying in lieu thereof:

Under 30 years of age	One sum of £80, or covenanting to pay £11 p.a. (after deduction of U.K. tax) for seven years.
Over 30 and under 50 years	One sum of £70, or covenanting to pay £10 p.a. (after deduction of U.K. tax) for seven years.
Over 50 years	One sum of £60, or covenanting to pay £9 p.a. (after deduction of U.K. tax) for seven years.
Over 60 years	Fellows who have already paid ten annual subscriptions may compound for 26 guineas.
Over 65 years	Fellows who have already paid ten annual subscriptions may compound for 20 guineas.'

The President, presenting the Society's medal to Mr. C. E. Blunt, said:

For more than eighty years (since 1883 in fact) it has been the pleasure of the Royal Numismatic Society to honour a distinguished numismatist annually by the award of a medal. The first award was made to Charles Roach Smith. This year the Council's unanimous choice fell on you. They could not have chosen better—nor in a better tradition.

For forty years you have been a leading figure in British numismatics. Your influence has rested not only on your own writings, to which I will return, but as much on the devoted and creative part you have always played in the progress of numismatic studies in Britain, particularly, but not exclusively, of coins of the British Isles. In this category I place (in chronological order) your Presidencies of the British Numismatic Society, the Royal Numismatic Society, and the British Association of Numismatic Societies. A more permanent record of your achievement lies in the part you have played in creating and fostering, in the exacting role of editor, the series of volumes published in the *Sylloge of Coins of the British Isles*. But for your editorial contribution, the *British Numismatic Journal* could before now well have foundered. Its survival during the war and remarkable success since is largely your achievement. The younger generation of British numismatists owes you an enormous debt (as I have always myself done, from my young days upwards).

As regards your writings, alone or in generous collaboration with other numismatists or antiquarians, I would mention, selectively, your papers on 'The Mint of Berwick-on-Tweed under Edward I–III' and your paper on 'Edward IV', both of which appeared before the war. After the war when your interests turned from the Middle Ages rather towards the inadequately studied Anglo-Saxons, I would mention your papers on 'Gold Pennies of Peada and of Edward the Elder', on 'The Coinage of Offa', on the 'Chronology of the Coinage of Southern England in the Ninth Century', on 'The Trewhiddle Hoard' and on the 'Coinage and Hoards of Alfred the Great'. But there are many more contributions of yours I could have mentioned: in addition, your series of five presidential addresses to the Royal Numismatic Society present a remarkable picture both of the width of your sympathies and of your grasp of a complex and developing subject. Nor must your work in building links with Scandinavia and elsewhere on the Continent be overlooked.

I have much pleasure now in handing you the Society's medal, in token of their appreciation of the services you have rendered to your chosen science, and in the hope that it may be some small encouragement to you to continue with the heavy, but extremely worth-while tasks, to which you have set yourself.

Mr. Blunt, in replying, thanked the Fellows for the honour done him, and the President for his generous words.

Mr. Allen had spoken on the past; he would say a word on the future and, in particular, the future of a project dear to him, the *Sylloge of Coins of the British Isles*. The series was modelled on the Greek *Sylloge* and, in the twelve years that the Committee set up by the British Academy had existed, ten volumes had been published dealing with collections in England, Scotland, Ireland, Denmark, and Sweden. In a parallel series, the British Museum had also published one volume.

The emphasis had so far been on the earlier coinages, but this was now changing. In the British Academy series there was in the press a volume on the post-conquest coins in the Ashmolean Museum down to 1279, and another on the Henry VII coins in the same collection was in hand.

A volume on the coins of the Bristol and Gloucester mints in their respective museums would also include a number of later coins, as the Bristol mint only closed finally in William III's reign.

Besides these, a further section of Dr. Galster's great work on the Anglo-Saxon coins at Copenhagen was well in hand—a remarkable achievement for a scholar who had just celebrated his eightieth birthday—and a volume was also being prepared on the Anglo-Saxon and Norman coins in Midlands museums.

Mr. Blunt ended with a plea for a continuation of the parallel series so successfully started by the British Museum. Though the National Collections was, of course, always readily accessible to students visiting the Coin Room, its value to scholarship would be greatly enhanced if an illustrated record on *Sylloge* lines could be on every student's shelf. The lack of this, in the Anglo-Saxon series in particular, was proving a major handicap to research and he urged that the deficiency should be remedied.

The President gave his review of the year and delivered his annual address (see pp. i–viii above).

A vote of thanks to the President was proposed by Mr. Whitting and seconded by Mr. Clayton.

The President announced the result of the Ballot for Council for the session 1969–70 as follows:

President: D. F. Allen, C.B., M.A., F.B.A., F.S.A.

Hon. Vice-President: E. S. G. Robinson, C.B.E., M.A., D.Litt., F.B.A., F.S.A.

Vice-Presidents:
C. H. V. Sutherland, M.A., D.Litt., F.S.A.
C. E. Blunt, O.B.E., F.B.A., F.S.A.

Treasurer: D. W. MacDowall, M.A., D.Phil., F.S.A., F.R.A.S.

Secretaries:
R. A. G. Carson, M.A., F.S.A.
G. K. Jenkins, B.A.

Foreign Secretary: D. G. Sellwood, B.Sc. (eng.), A.M.I.Mech.E.

Librarian; N. M. Lowick, B.A.

Members of Council:
Miss M. M. Archibald, M.A.
J. P. Barron, M.A., D.Phil.
P. A. Clayton, F.L.A.
M. H. Crawford, M.A.
Philip Grierson, M.A., F.B.A., F.S.A.
M. F. Hendy, M.A.
Colin M. Kraay, M.A., D.Phil., F.S.A.
H. B. Mattingly, B.A.
Lt.-Col. J. K. R. Murray
Miss E. J. E. Pirie, M.A., F.S.A. (Scot.)

There being no other business, the President closed the Meeting and the Society adjourned until the beginning of the new session on 21 October 1969.

THE ROYAL NUMISMATIC SOCIETY: BALANCE SHEET

As at 31 December 1968

LIABILITIES

31.12.67			£ s. d.	£ s. d.
		Capital Account		
	8,863	Balance at 31.12.67 . . .	10,070 14 2	
		Add: Excess of Income over Expenditure for the year per annexed account . . .	1,299 13 7	
10,071	1,208			11,370 7 9
		Endowment Fund		
434		Balance at 31.12.67 . . .		433 19 3
		Life Membership Fund		
206		Balance at 31.12.67 . . .		205 16 0
		Reserve for Printing Current Year's		
4,000 (2 years)		*Numismatic Chronicle* . .		2,500 0 0
177		*Subscriptions Paid in Advance* . .		172 4 0
242		*Sundry Creditors*		165 15 0

(Sgn.) DAVID W. MACDOWALL (*Hon. Treasurer*)

£15,130		£14,848 2 0

ASSETS

31.12.67			£ s. d.	£ s. d.
		Library Furniture, etc.		
1		Balance at 31.12.67 . . .		1 0 0
		Endowment Fund Investments		
	174	£200 5% Treasury Stock 1986/9 .	174 2 6	
	260	117 National Westminster £1 ord. 25 National Westminster 7% Cum Pref. @ middle market prices £623 (£541)	259 16 9	
434				433 19 3
		General Fund Investments		
		£1,537. 17*s.* 6*d.* British Transport 3%		
	1,100	Guaranteed Stock 1978/88 . .	1,100 9 0	
		£650 Birmingham Corporation 3¾%		
	661	Redeemable Stock 1970/2 . .	660 11 3	
	2,325	£2,500 5% Treasury Stock 1986/9 .	2,325 8 0	
	1,140	£1,400 3½% Treasury Stock 1979/81	1,139 11 0	
		£1,000 5% National Development		
	1,000	Bonds	1,000 0 0	
	1,400	£1,400 5% Defence Bonds . .	1,400 0 0	
	100	£100 4½% Defence Bonds . .	100 0 0	
		1,750 Equities Investments Fund for		
	2,183	Charities Units	2,183 0 4	
		400 Sears Holdings Ltd. 5*s.* shares @ middle market prices £10,942		
	605	(£10,047)	604 12 9	
10,514				10,513 12 4
		Life Membership Fund		
206		Deposit Account		205 16 0
		Sundry Debtors and Unexpired Expenditure		775 9 2
		Cash at Bank		
	3,300	On Deposit Account . . .	2,500 0 0	
	217	On Current Account . . .	418 5 3	
3,517				2,918 5 3

Note: Nothing is included above for stock of *Numismatic Chronicles* or for subscriptions in arrears.

£15,130		£14,848 2 0

We have examined the above Balance Sheet of the Royal Numismatic Society as at 31 December 1968 and the Income and Expenditure Account and the Balance Sheets of the Special Funds attached thereto, with the Books and Vouchers of the Society, and certify them to be correctly drawn up in accordance with those Books. We have obtained verification of the investments and Bank Balances shown in the said Balance Sheets.

London, W.C.

G. C. HAINES
D. E. SHACKLETON

INCOME AND EXPENDITURE ACCOUNT

For the Year ended 31 December 1968

31.12.67			£ s. d.	£ s. d.
		Numismatic Chronicle		
	2,177	*NC* 1966	2,676 9 0	
	108	*Less*: Receipts for Binding, Offprints, and Advertisements (1966)	142 10 3	
	100	*Less*: Grant	100 0 0	
1,969				2,433 9 9
		NC 1967	2,548 4 4	
		Less: Receipts for Binding, Offprints, and Advertisements (1967)	120 13 6	
		Less: Grant	100 0 0	
		Less: Transfer from Reserve	1,500 0 0	
				827 10 10
103		Postages, Printing, and Stationery		81 16 10
72		Hire of Rooms		60 0 0
188		Library Expenses		135 3 3
		Subscriptions		
		National Art collections Fund	5 5 0	
		Council for British Archaeology	3 10 0	
		British Association of Numismatic Societies	5 5 0	
		Commission Internationale de Numismatique	6 18 11	
20				20 18 11
50		General Expenses		25 6 1
15		Insurance		22 12 0
57		Secretarial Assistance		28 2 6
53		Audit Fee		— — —
49		Lantern Slides		— — —
500		Special Publications Fund		500 0 0
1,208		Balance, being Excess of Income over Expenditure		1,299 13 7
£4,284				£5,434 13 9

31.12.67			£ s. d.	£ s. d.
	55	Entrance Fees	49 7 0	
	2,665	Subscriptions	2,806 15 3	
2,720				2,856 2 3
704		Sales of *Numismatic Chronicle* (1967 and earlier)		1,611 11 8
		Income from Investments—General Fund		
	46	British Transport 3% Guaranteed Stock 1978/88	46 2 8	
	24	Birmingham Corporation 3¾% Redeemable Stock 1970/2	24 7 6	
	125	5% Treasury Stock 1986/9	125 0 0	
	49	3½% Treasury Stock 1979/81	49 0 0	
	50	5% National Development Bonds	50 0 0	
	70	5% Defence Bonds	70 0 0	
	5	4½% Defence Bonds	4 10 0	
	139	'Charifund' Units	142 7 6	
	25	Sears Holdings Ltd. Ord. Shares	25 0 0	
533				536 7 8
		Income from Investments Endowment Fund		
	10	5% Treasury Stock 1986/9	10 0 0	
	17	National Westminster Bank Ltd.	17 10 0	
27				27 10 0
		Interest on Deposit Account		
	100	General Fund	141 7 3	
	8	Life Membership Fund	11 5 9	
108				152 13 0
192		Income Tax repayable on Subscriptions paid under Covenant		250 9 2
£4,284				£5,434 13 9

SPECIAL FUNDS

Balance Sheets as at 31 December 1968

W. S. MARSHALL MEMORIAL FUND

1967			£ s. d.	£ s. d.	1967		£ s. d.	£ s. d.
		Capital Account				*Investment*		
1,290		Balance at 31.12.67	1,300 15 4			£1,025 Birmingham Corporation 3¾% Stock 1970/2 @ middle market price £872 (£861)		1,041 13 1
38		*Add*: Interest on Investment	38 8 10			Income Tax Repayable		39 12 11
	1,328	*Less*: Cost of Books for Presentation		1,339 4 2	1,042	*Cash at Bank* in the name of the Society		257 18 2
1,301				– – –	24			
					235			
£1,301				£1,339 4 2	£1,301			£1,339 4 2

SPECIAL PUBLICATIONS FUND

		Capital Account			424	*Inventory of British Coin Hoards*		
4,259		Balance at 31.12.67	4,810 13 5			Stock at 31.12.67	400 11 1	
50		*Add*: Interest on Investment	50 0 0		2,764	*Abdera*		
21		Interest on Deposit Accoun	21 14 0			Stock at 31.12.67	2,554 4 7	
500		Grant from General Fund	500 0 0			*Carthaginian Gold and Electrum*		
				5,382 7 5	490	Value of share in stock at 31.12.67	490 0 0	
					3,678		3,444 15 8	
					233	*Less*: Sales since	206 14 7	
					3,445			3,238 1 1
						Investment		
					1,000	1,000 5% National Development Bonds		1,000 0 0
					14	Income Tax Repayable		44 11 0
						Cash at Bank in the name of the Society		
					120	On Deposit Account	600 0 0	
					231	On Current Account	499 15 4	
					351			1,099 15 4
£4,810				£5,382 7 5	£4,810			£5,382 7 5

CAMARINA PUBLICATION TRUST FUND

1967		£ s. d.	£ s. d.	1967		£ s. d.	£ s. d.
	Capital Account				*Investment*		
1,607	Balance at 31.12.67	1,642 11 5			£1,600 British Electricity 4½% stock 1967/9 @ middle market price		
36	*Add*: Interest on Investment	72 0 0		1,580	£1572 (£1,532)	1,579 15 5	
				63	*Cash at Bank* in the name of the Society	134 16 0	
£1,643			£1,714 11 5	£1,643			£1,714 11 5

E. PARKES WEBER PRIZE FUND

	Capital Account			206	*Investment*		
214	Balance at 31.12.67	213 13 9			150 'Charifund' Units @ middle market price £326 (£230)		206 5 0
12	*Add*: Interest on Investment	12 0 0		8	*Cash at Bank* in the name of the Society		8 18 9
226		225 13 9					
12	*Less*: Prize Awarded	10 10 0					
			215 3 9				
£214			£215 3 9	£214			£215 3 9

LHOTKA PRIZE FUND

	Capital Account				*Investment*		
413	Balance at 31.12.67	413 19 6			£610 3½% Funding Stock 1999/2004		
21	*Add*: Interest on Investment	21 7 0		399	@ middle market price £296 (£332)		398 17 9
434		435 6 6		15	*Cash at Bank* in the name of the Society		16 8 9
20	*Less*: Fifth Award	20 0 0					
			415 6 6				
£414			£415 6 6	£414			£415 6 6

The Camarina Publication Trust Fund is an interest-free loan to the Royal Numismatic Society made by the Executors of the late Professor Eunice Work in order to enable it to publish her monograph on the coinage of Camarina.

THE ROYAL NUMISMATIC SOCIETY

PATRON

Her Majesty the Queen

PRESIDENT

D. F. Allen, C.B., M.A., F.B.A., F.S.A.

HONORARY VICE-PRESIDENT

E. S. G. Robinson, C.B.E., M.A., D.LITT., F.B.A., F.S.A.

VICE-PRESIDENTS

C. H. V. Sutherland, M.A., D.LITT., F.S.A.

C. E. Blunt, O.B.E., F.B.A., F.S.A.

TREASURER

D. W. MacDowall, M.A., D.PHIL., F.S.A., F.R.A.S.

Admont, Gravel Path, Berkhamsted, Herts.

SECRETARIES

R. A. G. Carson, M.A., F.S.A.

G. K. Jenkins, B.A.

The British Museum, W.C. 1

FOREIGN SECRETARY

D. G. Sellwood, B.SC. (ENG.), A.M.I.MECH.E.

44 Richmond Road, S.W. 20

LIBRARIAN

N. M. Lowick, B.A.

The British Museum, W.C. 1

EDITOR

R. A. G. Carson

The British Museum, W.C. 1

THE SOCIETY was founded in 1836 as the Numismatic Society of London and in 1904 by Royal Charter received the title of the Royal Numismatic Society.

FELLOWS are entitled to attend meetings, use the Society's library and will receive a copy of the current year's *Numismatic Chronicle* on publication. They are entitled to subscribe to new Special Publications, and to purchase back numbers of the *Numismatic Chronicle* and Special Publications that

are still available at a reduced price. Inquirers and applicants for fellowship are invited to write to the Hon. Secretary, Mr. R. A. G. Carson, Department of Coins and Medals, British Museum, London, W.C. 1.

MEETINGS are held in the rooms of the Society of Antiquaries, Burlington House, London, W. 1, from October to June on the third Tuesday in each month at 5.30 p.m.

THE SOCIETY'S LIBRARY is housed at the Warburg Institute, Woburn Square, London W.C. 1. Books can be sent to fellows by post on request either to the Society's Librarian, Mr. N. M. Lowick, at the British Museum, or to Mr. J. Trapp at the Warburg Institute.

THE *Numismatic Chronicle* and Journal of the Society is published at the end of each year. Each volume containing upward of 250 pages of articles, notes on hoards and finds, reviews and notices of selected new publications is sent free to all Fellows, whose subscriptions are not in arrears. Fellows may purchase copies of back numbers of the Chronicle still in stock, *NC* 1961 to date, at £4 ($11) per volume, and should send the appropriate remittance with their order to the Hon. Secretary, Mr. R. A. G. Carson at the British Museum. Non-fellows may purchase volumes of the *Numismatic Chronicle* at £5 from Bernard Quaritch, 11 Grafton Street, London, W. 1. Articles and other communications on coins or medals of all periods are invited by the Editor, Mr. R. A. G. Carson. They should be submitted to him at the British Museum after careful reference to the 'Guidance for Contributors' printed below, and should be accompanied by an abstract (not normally exceeding 50 words in length) suitable for inclusion in *Numismatic Literature*, the bibliography of numismatic works published by the American Numismatic Society.

SPECIAL PUBLICATIONS are issued from time to time—approximately every two years. Fellows are entitled to subscribe at favourable pre-publication rates, and may purchase copies of earlier publications still available direct from the Society at reduced prices:

	Price to Fellows	Price to Non-fellows
1. J. D. A. Thompson, *Inventory of British Coin Hoards*	£2. 10*s.* or $7.00	(£3. 3*s.*)
2. G. K. Jenkins and R. B. Lewis, *Carthaginian Gold and Electrum Coins*	£5. 5*s.*	(£5. 5*s.*)
3. J. M. F. May, *The Coinage of Abdera*	£4. 10*s.* or $12.00	(£5. 5*s.*)
4. M. H. Crawford, *Roman Republican Coin Hoards*	£3. 5*s.* or $10.00	(£3. 15*s.*)

Fellows who wish to purchase copies should send their order together with the appropriate remittance to the Hon. Secretary, Mr. R. A. G. Carson at the British Museum. Non-fellows may obtain copies from Spink & Sons Ltd., 5–7 King Street, St. James's, London, S.W. 1.

SUBSCRIPTIONS. Except for those under 26 years of age, an entrance fee of 1 guinea is payable. The initial subscription (including this entrance fee), payable on election, is 5 guineas (£5. 5*s*.) or $14.00. The annual subscription for Fellows, payable on 1 January in each subsequent year, is 4 guineas (£4. 4*s*.) or $12.00. Fellows are normally expected to pay by sterling cheques, drafts, etc., payable in London, or in U.S. or Canadian dollars. Fellows who pay in other currencies and by sterling cheques that have to be collected in the country of origin are expected to add the *full* costs of collection, exchange, bank charges, etc. A Fellow may compound for future annual contributions by paying:

Aged under 30	£80	U.S. $200
30–50	£70	U.S. $180
over 50	£60	U.S. $150

Fellows who pay U.K. tax at the standard rate may compound as follows:

Aged under 30 by covenanting to pay £11 p.a. for seven years
30–50 „ „ „ „ £10 „ „ „ „
over 50 „ „ „ „ £9 „ „ „ „

Fellows, who have paid at least ten annual subscriptions, may compound for 26 guineas at age 60 or for 20 guineas at age 65.

PRIZES

The Dr. F. Parkes Weber Prize

1. Through the generosity of the late F. Parkes Weber, Esq., M.D., F.S.A., the author of many studies concerning coins and medals, an annual prize has been instituted under the administration of the Council of the Society.

2. The value of the prize will be ten guineas. The prize-winner will also receive, inscribed with his or her name, a small bronze replica of Dr. Parkes Weber's portrait medal by Frank Bowcher.

3. Competitors for the prize must be under the age of twenty-one on the final day of entry, 31 August. Competitors may be of any nationality.

4. The prize will be awarded for an original essay of not more than 5,000 words on any subject relating to coins, medals, medallions, or tokens. Competitors should choose their own subject, but may seek guidance if they wish.

5. The essay should be clearly written or typed in English on one side of the paper only and should be sent, with a stamped addressed envelope for return, to Mr. D. G. Sellwood, 44 Richmond Road, London, S.W. 20, the Hon. Secretary of the Parkes Weber Prize Committee.

6. The award will be announced in December of the same year.

7. The Council of The Royal Numismatic Society reserves the right to advise that no award be made in any given year, if entries are not of a sufficiently high standard.

8. The award shall not be made to any candidate who has won it previously.

The Lhotka Memorial Prize

Professor J. F. Lhotka, M.D., Ph.D., of the University of Oklahoma, has endowed a prize under this name in memory of his father, Dr. J. F. Lhotka.

Professor Lhotka has entrusted the administration of the awards to the Royal Numismatic Society, which with his consent has made the following Regulations.

1. Subject to paragraph 3 below, the prize will be awarded annually in December to the author adjudged to have published in the previous two calendar years the book or article in English most helpful to the elementary student of numismatics.
2. Submissions, accompanied by a copy of the work submitted, which will be returned if requested, may be made by any person before 30 September in each year to the Honorary Secretary of the Royal Numismatic Society, c/o Department of Coins and Medals, British Museum, London, W.C. 1. The first prize will be awarded on recommendations received before 30 September.
3. Works submitted will be examined by the Publications Committee of the Society, who will report to the Council. The adjudication will be made by members of the Council present at the ordinary December Meeting, or such other Meeting as the Council may decide. In the event of even voting the Chairman of the Meeting shall have an additional casting vote. No award shall be made in any year when the majority of those present at the Council Meeting are of the opinion that no work submitted is of adequate quality.
4. The prize will be of the approximate value of £20, and will be accompanied by an official certificate of The Royal Numismatic Society recording the award.
5. The above Regulations may be varied from time to time by the Council, provided that no part of the capital or income of the Trust Fund shall be expended for purposes other than those of the advancement of education in numismatics.

THE ROYAL NUMISMATIC SOCIETY

Patron: HER MAJESTY THE QUEEN

LIST OF FELLOWS

June 1969

*The sign * indicates that the Fellow has compounded for his annual contribution.*
The sign † indicates that the Fellow has subsequently died.

ELECTED

1959 AARHUS, DENMARK, Institut for Oldtids-og Middelalder-Forskning, c/o Staatsbiblioteket, The University.

1968 AARHUS, DENMARK, Staatsbiblioteket Tidskriftafdelingen, 8000 Aarhus C.

1967 AARON, ROBERT, B.A., 60 Wembley Road, Toronto, Canada.

1956 ABÉ KENJI, D.Econ., No. 710, 2-chome, Tamagawa-Denenchofu, Setagaya-Ku, Tokyo, Japan.

1962 ABECASSIS, RAUL, Rua de S. Nicolau 123, Lisbon, Portugal.

1962 ABGARIANS, MESROB T., D.D.S., 6 Kutchehyi Tamadon, Khiyabani Ferdowsi, Teheran, Iran.

1966 ABLESON, MALCOLM, 59 Sandhill Oval, Leeds 17, Yorks.

1967 ABRAHAMS, SETH G., 917 Innes Chambers, 84 Pritchard Street, Johannesburg, S. Africa.

1947 ABSALOM, HAROLD W. D., Delaval, 71 Darnton Road, Ashton-under-Lyne, Lancs.

1967 ADAMS, N. W. J., St. Andrews, 148 Northwich Road, Weaverham, Cheshire.

1961 AIRD, GEORGE S., 57 John Street, Sunderland, Co. Durham.

1953 ALDRIDGE, E. F., 9 Cherry Hill, St. Albans, Herts.

1935 ALLEN, DEREK F., C.B., M.A., F.B.A., F.S.A., Grenna House, Chilson, near Charlbury, Oxon.; *President*.

1963 ALLEN, HAROLD DON, B.Sc., c/o K. Hill, 368 Merton, St. Lanbert, Montreal 23, Quebec, Canada.

1965 ALLEN, PETER GERALD, 9 Dorset Square, London, N.W. 1.

1969 ALLISON, B. E., 'Tobruk', Beaumont Drive, Ballintemple, Cork, Eire.

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16. Dates should be given in the form: 13 October 1066. The era (B.C., A.D., A.H., &c.), where it is required, should be printed in small capitals, and, except in the case of 'B.C.', should precede the figures: 39 B.C., but A.D. 117.

Transliteration

17. Contributors are free to use any modern accepted system of transliteration. For editorial purposes, however, including indexing, where some standardization is necessary, the following system will be used as a basis for transliterating Arabic and related languages:

ء (medial and final)	'	د	d	ط	ṭ	ل	l
ب	b	ذ	dh	ظ	ẓ	م	m
ت	t	ر	r	ع	'	ن	n
ث	th	ز	z	غ	gh	ه	h
ج	j	س	s	ف	f	و	w or u
ح	h	ش	sh	ق	q	ى	y or i
خ	kh	ص	ṣ	ك	k		
		ض	ḍ				

References

18. A list is appended giving abbreviations which may be used (in the exact form printed) to refer to the names of certain standard books and periodicals. An author desiring to use any others should specify them in an introductory note to his article.

19. Reference to substantive works in general, whether to an abbreviated title or not, should take the following form: (i) author's name followed by comma, (ii) title in italics, with volume number (if necessary) in small roman numerals, followed by comma, (iii) page-number. Details of the edition, and of the date and place of publication, should be added only when ambiguity or other difficulty might otherwise arise.

20. The page-number should not normally be prefixed by 'p.' or 'pp.' unless ambiguity would result from its absence. Thus in

*HN*² 20
NC 1936, 20
NC 1936, 20, no. 10

it should be clear that '20' in each case refers to the page, while 'no. 10' refers to a coin on that page. On the other hand, *SNG* iii, 500 will be easily understood as referring to coin no. 500 in vol. iii of the Greek *Sylloge*. Reference to a sequence of pages can be made either in the form '20–21' (or '20 f.'), or '20–30' (or '20 ff.').

21. Reference to a periodical should, whenever possible, be made primarily according to the date it bears on the title-page: its volume number should be added (in brackets) only when ambiguity might otherwise arise.

22. Citation from ancient and medieval authors should follow the form: (i) author's name (which may be appropriately abbreviated), (ii) title of work (in italics) where necessary, (iii) book number in roman numerals, (iv) section or paragraph in arabic numerals: thus, 'Horace, *Odes* i. 4'. Where either the author's name or the title is abbreviated the form should be as follows: 'Cic. *Phil.* i. 1', i.e. with full stops after the abbreviations.

ABBREVIATIONS

AA	*Archäologischer Anzeiger*
AJA	*American Journal of Archaeology*
AJN	*American Journal of Numismatics*
AM	*Athenische Mitteilungen*
AMNG	*Die antike Münzen Nordgriechenlands* (viz. the so-called Berlin Corpus)
ANS	*American Numismatic Society*
ASFN	*Annuaire de la société française de numismatique*
Bab. *Traité*	E. Babelon, *Traité des monnaies grecques et romaines*
BCH	*Bulletin de correspondance hellénique*
BMC with suffix	The appropriate volumes of the *British Museum Catalogue* as follows: *BMCA-S* (Anglo-Saxon), *BMC Byz.* (Byzantine), *BMCH*[2] (Henry II), *BMCI* (Indian), *BMC Italy*, &c. (the appropriate volume of the *Catalogue of Greek Coins*), *BMCNK* (Norman Kings), *BMCO* (Oriental), *BMCRE* (Roman Empire), *BMCRR* (Roman Republic), *BMC Van.* (Vandals, &c.)
BMzB	*Berliner Münzblätter*
BNJ	*British Numismatic Journal*
BNZ	*Berliner Numismatische Zeitschrift*
Brooke, *EC*[3]	G. C. Brooke, *English Coins* (3rd edn., revised, London, 1950)
BSA	*Annual of the British School at Athens*
BSFN	*Bulletin de la société française de numismatique*
BSR	*Papers of the British School at Rome*
Coh.	H. Cohen, *Description historique des médailles frappées sous l'empire romain*[2] (Paris, 1880–92)
CIL	*Corpus Inscriptionum Latinarum*
CNI	*Corpus Nummorum Italicorum*
CNP	*Corpus Nummorum Palaestinensium*
CPANS	*Centennial Publication of the American Numismatic Society*
Syd. *CRR*	E. A. Sydenham, *Coinage of the Roman Republic* (London, 1952)

E. and S.	A. Engel and R. Serrure, *Traité de numismatique du moyen âge*
HBN	*Hamburger Beiträge zur Numismatik*
Head, *HN*²	B. V. Head, *Historia Numorum* (2nd edn., Oxford, 1911)
IG	*Inscriptiones Graecae*
ILS	H. Dessau, *Inscriptiones Latinae Selectae*
IMC	*Indian Museum Catalogue*
JDI	*Jahrbuch des deutschen archäologischen Instituts*
JHS	*Journal of Hellenic Studies*
JIAN	*Journal International d'Archéologie Numismatique*
JNG	*Jahrbuch für Numismatik und Geldgeschichte*
JNSI	*Journal of the Numismatic Society of India*
JRAS	*Journal of the Royal Asiatic Society*
JRS	*Journal of Roman Studies*
MN	*Museum Notes* (ANS)
NC	*Numismatic Chronicle*
NL	*Numismatic Literature*
NNÅ	*Nordisk Numismatisk Årsskrift* (Stockholm)
NNM	*Numismatic Notes and Monographs* (ANS)
NNUM	*Nordisk Numismatisk Unions Medlemsblad* (Copenhagen)
NSc	*Notizie degli scavi*
NZ	*Numismatische Zeitschrift* (Vienna)
RBN	*Revue belge de numismatique*
RE	Pauly–Wissowa–Kroll, *Realencyclopädie*
RIC	Mattingly, Sydenham, and others, *Roman Imperial Coinage*
RIN	*Rivista italiana di numismatica*
RM	*Römische Mitteilungen*
RN	*Revue numismatique*
SCBI	*Sylloge of the Coins of the British Isles*
SMzB	*Schweizer Münzblätter*
SNG	*Sylloge Nummorum Graecorum* (Gt. Britain)
SNG (Cop.)	*Sylloge Nummorum Graecorum* (Copenhagen)
SNG (von A.)	*Sylloge Nummorum Graecorum* (von Aulock)
SNR	*Schweizer Numismatische Rundschau*
TINC	*Transactions of the International Numismatic Congress 1936* (London, 1938)
ZDMG	*Zeitschrift der deutschen morgenländischen Gesellschaft*
ZfN	*Zeitschrift für Numismatik* (Berlin)

INTERNATIONAL CENTRE FOR NUMISMATIC STUDIES, NAPLES

An International Centre for Numismatic Studies has recently been set up at Naples through the initiative of the Istituto Italiano di Numismatica and of the Museo Civico Filangieri, and under the auspices of the International Numismatic Commission. It will be situated at the Villa Livia, which has been put at the disposal of the Centre by the Museo Filangieri. The President of the executive committee of the Centre is Dr. C. H. V. Sutherland, and the Director of Studies is Professoressa Laura Breglia.

The main purpose of the Centre is to assemble a collection of printed material, coin-casts, and photographs bearing on the Greek and early Roman numismatic history of Magna Graecia and Sicily, and chosen in the first instance to illustrate themes selected by the Committee of Direction for successive study-sessions, which will culminate each year in a Congress to be held in the Centre.

The Centre will enjoy the collaboration of the Italian Inspectorates of Antiquities, as well as of learned institutions both in Italy and elsewhere; and the collecting of material has already begun under the auspices of the Ministry of Public Instruction (Direzione Generale dell'Istruzione Universitaria, Direzione Generale delle Antichità e Belle Arti, Direzione Generale delle Accademie e Biblioteche). The material, when assembled, will remain the property of the Centre, and will be made available to any scholars who wish to use it.

The first working Congress, in April 1967, was devoted to 'The circulation of Attic coinage in Magna Graecia and Sicily'; the papers then contributed have been published by the Istituto Italiano di Numismatica as a supplementary volume of *Annali* 12–14. The second Congress, held in April 1969, dealt with the archaic coinage of Himera, and the contributions will again be published. A further Congress is planned for 1971, the subject at present proposed being 'The bronze coinage of Poseidonia —Paestum'.

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